Mathematics 700-1200

Diagnostic Tests

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MATHEMATICS 700-1200 Introduction

PLACEMENT TEST for the LIFEPAC CURRICULUM Instructions

This test is designed to aid the teacher in proper placement of the student into the LIFEPAC curriculum. It has two sections: the Student Test and the Answer Key. The Answer Key is an insert in the Student Test and may be removed when testing begins.

This is not a timed test and the student should be given an opportunity to answer each question adequately. If the student becomes bogged down and the test seems too difficult, skip to the next section. If the test is still too difficult, this child's academic skill level has been reached and testing may stop. Each test level should take no longer than one hour. Students should not use calculators for any of these tests.

Testing should begin approximately two grade levels below the student's current or just completed grade level. For example, a student entering tenth grade [1000] should begin testing at the eighth grade [800] level. This allows for proper grade level placement as well as identification of any learning gaps that the student may have.

Once the test has been administered, it is ready to be scored. The teacher or parent does all of the scoring except for those who are using one of our placement services. Use the Answer Key to mark all incorrect answers on the Student Test. Next, record the total number of **correct** answers in the box beneath the LIFEPAC number in the left hand column. When all tests have been graded, transfer the number correct by LIFEPAC to the Student Placement Worksheet on the back page of the Answer Keys. Then add the total number of points per grade level.

Test	Level	Test	Level
701 - 710	7	1001 - 1010	10
801 - 810	8	1101 - 1110	11
901 - 910	9	1201 - 1210	12

There are ten possible points per section. Put all answers on the blanks to the right of the questions unless instructed to do otherwise.

701	1.	Write the number represented by the expanded form. $4 \ge 100,000 + 5 \ge 1,000 + 3 \ge 100 + 6$	1
		Write the correct symbol to make the sentences true. $(>, <, =)$	2a.
	2.	a. 8 7 b. 14 14 c. 24 29	b.
		Complete the table for the given sentence.	c.
		a - b = 25	
		a = 52 69 34	3
		b = 3 4 5	4
			5
	6.	Find the number that makes the sentence true. 18 + 5 + 14 + N = 48	6
	7	Find the sum of 5 742 and 3 824	7.
	8.	Find the difference of 5,742 and 3,824.	8.
	9.	Find the <i>estimated</i> answer of 492 + 220 to the nearest hundred.	9
	10.	Find the <i>estimated</i> answer of 6,443 – 3,861 to the nearest thousand.	10
702	1.	In the multiplication problem $67 \times 7 = 469$, what is the a. multiplier b. multiplicand c. product ?	1a
			с.
	2.	In the division problem $75 \div 5 = 15$, what is the	2a.
		a. dividend b. quotient c. divisor :	b.
	3.	What is the missing number in the sequence 1, 3, 9,, 81, 243?	с.
			3
	4.	What is the value of the exponential number 4^{3} ?	
	5.	What is the value of 54×10^8 ?	4
			5.
	6	What is the answer to $70 \times 68 =$	
	о. 7	$79 \times 66 =$ 896 × 76 =	6.
	8.	$525 \div 19 =$	7.
	9.	47,352 ÷ 78 =	8.
			9.
	10.	If your classroom had 38 pupils and 1 was absent on Monday, 2 on Tuesday, 4 on Wednesday, 0 on Thursday, and 3 on Friday, what was the average daily attendance?	10

703	1.	What is the name of AC and/or DB?	
		A C D B	1
	2.	What do we use to measure an angle?	
		a. ruler b. scale c. protractor	2.
	3.	What is the perimeter of the triangle? $4/6$	
		$\frac{1}{7}$	3
	4.	What is the name of a triangle that has one angle equal to 90°	
	_	A D.	4
	5.	The name of is	
		в	
			5.
		a. parallelogram ABCD b. trapezoid ABCD	
		c. quadrilateral ABCD d. rectangle ABCD	
			6
	6.	What is the sum of the angles of a quadrilateral?	
	-		7
	7. o	What is the diameter of a circle if the radius is 3 inches?	7
	0. 9	What is the area of a rectangle with dimensions of	8
	J.	16 ft. and 18 ft.?	9
	10.	What is the sum of the angles of a hexagon?	10.
704		5	
	1.	Raise $\frac{3}{9}$ to higher terms with a denominator of 54.	
	-	45	4
	2.	Find the quotient of $\overline{7}$.	1
	_	7 7	2
	3.	Select the correct symbol. $\overline{8}$ (<, >) $\overline{9}$.	<u>ــــــــــــــــــــــــــــــــــــ</u>
		1	3.
	4.	Write $2\frac{1}{5}$ as a decimal.	
	5	Write 00034 as a percent	4
	0.		_
	6.	Show the ratio of 9 nickels to 34 pennies.	5
		Ĩ	6
	7.	Write 64% as a fraction reduced to lowest terms.	0
			7.
	8.	Write .13% as a decimal.	
	9.	What is the decimal equivalent to the fraction $\frac{7}{8}$?	8
	- *	1	
	10.	Convert 5 grams to milligrams.	9
			10
			10.

705	1.	Show how a set is written if the elements of the set are 5, 7, 9, 1	1. 1. _.	
	2.	Given $A = \{1, 2, 3, 4, 5,\}$, a subset of A would be a. $\{1, 2, 3, 4, 5, 6\}$ c. $\{0\}$ b. $\{1, 2, 3\}$ d. $\{2, 4, 6, 8\}$	2.	
	3.	The intersection of sets $A = \{3, 4, 5, 6, 7\}$ and $B = \{3, 6, 9, 12\}$ is a. $\{3, 6\}$ c. $\{3, 4, 5, 6, 7, 9, 12\}$	3. 4.	
	4	b. $\{3, 4, 5, 6, 7\}$ d. an empty set	5.	
	- .	Write a number that is 10,000 times larger than ,0008	6.	
	6.	Show 7,000,000 as a power of 10.	-	
	7.	What is the greatest common factor of 24 and 64?	7.	
	8.	What is the least common multiple of 20 and 28?	8.	
	9.	List the prime factors of 16 using exponential notation.	9.	
	10.	58 is an example of a (a. prime b. composite) number.	10.	
706	1.	a. $\frac{3}{4}$ b. $9\frac{1}{3}$ 2. a. $\frac{7}{15}$ b. $3\frac{7}{12}$	-	
		$+\frac{7}{8}$ $+6\frac{4}{9}$ $-\frac{4}{45}$ $-1\frac{3}{4}$	1a.	b.
			2a.	b.
	3.	Add: 21.023 + 5.6 = 4. Subtract 4.3 - 3.28 =	3.	
	5.	Write the decimal fraction .07 as a common fraction.	4.	
	6.	Write the decimal .255 as a common fraction in lowest terms.	5.	
	7.	Write the common fraction $\overline{7}$ as a decimal fraction to the nearest hundredth.	6.	
	8.	From the list of fractions and decimals, find three that are equivalent in value.	7.	
		a. $\frac{5}{8}$ b. $\frac{1}{4}$ c. 0.625 d. $\frac{25}{40}$ e. .0625 f. $\frac{25}{64}$	8.	/
	9.	A radio announcer takes $2\frac{7}{8}$ minutes to play each record and	-	
		1 $\frac{1}{2}$ minutes to read a commercial. How long does he take to	9.	
	10	read a commercial and play two records?		
	10.	The first game of a double-neader lasted 2.1 hours. The second	10	
		game lasted only $1 - \frac{1}{5}$ hours. How much longer was the first	10.	
		game than the second game?		

707	1.	a.	$\frac{2}{3} \times \frac{4}{5} =$	b.	12 x 6 $\frac{1}{8}$ =	1a	b.
	_		3 1	_	4	2a	b.
	2.	a.	$\overline{8} \div \overline{4} =$	b.	$\overline{5} \div 6 =$	3a.	b.
	3.	a.	$5 \frac{2}{3} \times 1 \frac{1}{17} =$	b.	$2\frac{3}{8} \div 2\frac{5}{7} =$	4a.	
	4.	a.	$.85 \times 2.1 =$	b.	$41.76 \times 7.4 =$	b	
				21		5a.	
	5.	a.	83.78 ÷ 2.36 =	b.	3.18 ÷ .16 =	b	
	6.	a	3.451 x 100 =	b.	7.39 ÷ 1,000 =	6a.	
		Ein du	ha miasina numba	_		b	
	7.	25% o	f 28 = N	•		7	
	8.	20 = 5	0% of N			8	
	9.	24 = N	J% of 96.			9.	
	10.	Debra were	earns a 6.5% comm \$4,375. How much c	nission lid she	. One week, her total sales earn that week?	10.	
708	1.	If the	area is 24 sq. ft. and	l the le	ngth is 8 ft., what is the width	? 1.	
	2.	If a so	uare is 5 in. on a signal will be	de, wh	at is its perimeter?	2.	
	5.	is 18%	%?	e paiu	on \$550 if the fate of interest	3.	
	4.	Of the	e following choices,	, which	one is an equation?		
	-	a. 4	b. xy c. 14	4 = 2 x	7 d. $(3+5) \times 8$	4	
	5.	what	is the ratio 15:75 rec	uucea	to lowest terms:	5.	
	6.	Write	the proportion: For	ur is to	nine as twelve is to	-	
	7	twent Which	y-seven. A of these is a true r	roport	ion?	6	
	7.	a. 6:1	2 = 20:30 b. 2:3	3 = 8:12	c. $1:5 = 5:1$ d. $6:8 = 24:34$	4 7	
	8.	What 1,800	is the approximate miles in 3.5 hours ?	rate of	travel of an airplane that goes	8	
	9.	Jody j wide What	plans to have a picto by 3 in. long. When will be the width?	ure enl enlarg	arged. The picture is now 2 in. ed, the length will be 42 in.	^{9.} _	
	10.	The ra pet sh	atio of hamsters to g op has 9 hamsters,	gerbils how m	in a pet shop is 1:3. If the any gerbils does it have?	10.	

709	1.	A selection in which every member of a large group has an equal chance of being chosen is called a	1	
		a. frequency b. biased sample c. random sample d. grap	h	
		Find the following information about the numbers. 8 10 5 8 12 8 12		
	2.	What is the mean?	2.	
	3.	What is the median?	3 -	
	4.	What is the mode?	<u> </u>	
	_		4	
	5.	What is the range for the following set of numbers? $7 - 2 - 24 - 12 - 12$	5	
			J	
		13 14 2 7 9 10		
		Identify points on the coordinate axes.		
	6.	Point A	6.	
	7.	Point B	7.	
	8.	Point C \prec	• –	
		C+ F₅+ K	o	
		On the line graph		
	9.	If the number is 19, what is the frequency? $\frac{1}{2}$	9.	
	10.	If the frequency is 5, what is the number? $y = \frac{1}{1920212223}$	- 10	
710	1.	Write this number in expanded notation. 80,000	10	
	2.	7,062 (<,>) 6,974	1.	
	3.	A quadrilateral with four sides equal and parallel. a. square b. rectangle c. parallelogram d. trapezoid	2	
	4.	Find the greatest common factor for 16 and 48.	3	
	5.	The diameter of a regulation basketball hoop is 18 in. What		
		is the circumference of the hoop?	4	
	6.	a. $\frac{2}{3}$ b. $5\frac{4}{5}$	5.	
		1 2 2	_	
		+ 9 - 3 15		
	-	$\frac{4}{1}$ $\frac{3}{1}$ $\frac{1}{1}$ $\frac{2}{2}$	6a	b.
	7.	a. 9×8 b. $7 \cdot 3 = 3 \cdot 3$		
	8.	Find the missing term in the following equation. $3:18 = \:36$	7a	b.
	9.	Write the words to this formula. $D = R \times T$	8	
	10.	Rhonda attempted 9 field goals and made 4. What was her field goal percentage?	9	
		Tern Dom Kercenniger	10.	

801	1.	Write in numerals: two million, five thousand, two hundred six.	1.	
	2. 3. 4.	What is the position of the 5 in the number 500,493? How many digits in 8,720? Round 489.045 to the nearest ten thousand.	2. 3.	
	5.	How many fish did Bill Knox catch on Thursday? Monday Tuesday Wednesday Thursday Friday Friday How many fish did Bill Knox catch on Thursday? Monday the formula for the formula formula for the formula for the formula for the formula for the formula formula for the formula formula formula for the formula form	 5. 6. 	
	0. 7.	How many feet in 696 inches?	7.	
	8.	If the perimeter of a square is 272 in., what is the length of each side?	8.	
	9.	AB = 12 in., $BC = 10$ in. and $CD = 15$ in. What is the length of AD?	9.	
		A B C D		
	10.	A pyramid has a square base with an edge of 42 meters. Find the area of the base.	10.	
802	1.	Write MDCXIV in Arabic numerals.	1.	
	2.	The number 15 in the base two number system is (a. 10000_2 b. 1011_2 c. 1111_2 d. 1101_2).	2.	
	3.	Write the following in exponential form: $5 \times 5 \times 5 \times 5$	3.	
	4.	(2+6)+3=2+(6+3) is an example of the (a. associative b. commutative) property of addition.	4.	
	5.	List three prime numbers between 16 and 24.	_	
	6.	Write 36 in prime factorization.	5.	
	7.	What is the square root of 36?	6.	
	8.	What is the lowest common denominator of $\frac{7}{8}$, $\frac{9}{10}$, $\frac{1}{12}$?	7.	
	9.	Reduce the fraction $\frac{85}{102}$ to lowest terms.	8.	
	10.	What is the next number in the number pattern	9.	
		$\frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \dots$?	10.	

803	1.	What is the smallest fraction equivalent to $\frac{6}{8}$, $\frac{15}{20}$, and $\frac{21}{28}$?	1
	2.	Raise the fraction $\frac{2}{7}$ to higher terms with	2
		a denominator of 42.	3.
	3.	Write the improper fraction $\frac{11}{7}$ as a mixed number.	4.
	4.	Express 18 inches and 2 yards as a ratio.	
	5.	Arrange in order from smallest to largest: $\frac{1}{2}$, $1\frac{2}{3}$, $\frac{5}{6}$, $\frac{7}{12}$, $\frac{17}{8}$, $\frac{1}{8}$	5
	6.	Write the fraction $\frac{1}{5}$ as a decimal.	6
	7.	Write 71% as a fraction.	7.
	8.	What is the height of a building that casts a shadow of 25 ft. at the same time of day that a stick 8 ft. long casts a shadow of 5 ft.?	8
	9.	The number 10 ⁻³ means (a. 7 b. 0.001 c. -30 d. 10,000).	9
	10.	If John sells \$50 worth of merchandise, he makes \$5. What is his percent of commission?	10
804	1.	Add and simplify: $\frac{2}{3} + \frac{1}{2} =$ 2. $357 \frac{4}{5}$	1
		$98 \frac{2}{3}$	2.
		$+162\frac{7}{15}$	
		4 4 1	3
	3.	Subtract and simplify: $\frac{1}{5} - \frac{1}{7} = 4$. $7\frac{1}{4}$	4.
		$-5\frac{3}{5}$	
	5.	Add: 754.32 + 16.304 + 9.24 =	5
	6.	Subtract: 7.37 – 3.402 =	5
	7.	Add and subtract: 5.326 + 0.17 – 2.3904 =	6
	8.	Round 72,048 to the nearest 10.	7
	9.	Write an improper fraction using the numbers 5 and 10.	8.
	10.	Change the fraction $\frac{3}{5}$ to a decimal fraction.	9.
			10.

805	1.	Multiply and simplify: $\frac{2}{15} \times 6 =$	1	
	2.	Multiply and simplify: $8\frac{2}{3} \times 6\frac{3}{4} =$	2	
	3.	Multiply: 7,456 4. Divide: 20.1)1,616.04	3	
		<u>x 0.0014</u> 5 3	4	
	5.	Divide and simplify. $\frac{1}{8} \div \frac{1}{4} =$	5	
	6.	Divide and simplify: $4 \frac{9}{10} \div 2 \frac{5}{5} =$	6	
	7.	If a family has an annual income of \$15,000 and budgets $\frac{1}{5}$	7	
		of it for housing, what is the amount of money that is		
		reserved for housing?	8	
	8. 9.	What number is 12 percent of 30? 14.72 is 23% of what number?	9.	
	10.	What percent of 120 equals 21?	10.	
806	1.	Given the following numbers: 19, 28, 37, 23, 17, 42, 58 Find the mean. 2. Find the median. 3. Find the deviation.	1	
	4.	Given the following numbers: 2, 2, 3, 6, 1, 9, 4, 2, 5, 7, 6, 8, 6, 2 What is the frequency distribution of 2?	2.	
		A box contains ton balls of like shape and size. Three are red	3	
		two are white, and five are blue. The balls are also numbered from 1 to 10. Find the following probabilities.	4	
	5. 6.	one red ball . one ball with a number >5 .	5	
	7.	Given the function rule $d = r \times t$ and the following table,	6	
		Time in hours 1 2 3 4 5	7	
	8.	Distance 40 80 120 160 What are the missing order-pair numbers for $f(n) = 3 \times n + 2$?		
		$\begin{array}{c c} n & 0 & 1 & 2 & 3 \\ \hline f(n) & 2 & & & & \\ \hline \end{array}$	8	
	9.	Write the ordered pair for point A.	9	
	10.	A school committee has two girls, Mary and Jean and three boys,		

10. A school committee has two girls, Mary and Jean and three boys, Jim, Doug, and Allen. What is the probability of Mary or Doug being chosen by drawing to represent the committee at an assembly?

10. _____

807	1.	Select the positive integers. (a. 0, 1, 2, 3, 4, b. 1, 2, 3, 4, 1.
		c. $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$ d. $\frac{1}{2}$, 1, 1 $\frac{1}{2}$, 2, 2 $\frac{1}{2}$.).
	2.	Write the integers -8, 2, 0, -6, 5, 10, -15 in order from smallest to
		largest.
	3.	What is the absolute value of $ -32 $? $32 $ $4.$
	4. 5	Find the sum: $25 + (-11) + (-15) + 7 + (-8) + 17$. 5.
	5. 6.	Find the product: $2 \times (-9) \times 0$
	7.	Find the value of a^3 when $a = -3$.
	8.	What are the coordinates of a_1 a_2 a_3 a_4 a_4 a_5 a_6
		(a. point A and b. point B)
		on the graph?
	0	9
	9.	If $a = 2$, $b = -5$, and $c = 0$, what is the answer to this algebraic expression: $a^2b + (-3)^c - \frac{c}{ab} =$
	10.	Find the missing number for a in the table to make the given 10
		sentence true.
		$a - b = -1$ $\begin{array}{c ccccccccccccccccccccccccccccccccccc$
808	1.	Find the area of the given triangle.
	2.	Find the area of the given trapezoid.
	•	
	3. 4.	Find the circumference of a circle with a radius of 4.1 cm. Find the area of a circle with a diameter of 5 ft. 4 .
	-	$\frac{1}{1} (1 - 1) (1 -$
	5.	Find the volume of a tank with measurements $1\frac{1}{2}$ ft., 3 ft. and 2 ft. 5.
	6.	Select the area of the given prism. 6.
		a. $8\sqrt{2}$ ft ⁻²
		b. $12\sqrt{2}$ ft. ²
		c. 20 ft. ² + 8 $\sqrt{2}$ ft. ²
	7.	Select the volume of a paint can 6 in. high and $7\frac{1}{2}$ in. in diameter.
		1
		a. $28 \frac{1}{8} \pi \text{ in.}^3$ b. $45 \pi \text{ in.}^3$ c. $84 \frac{1}{8} \pi \text{ in.}^3$
	8.	Convert 270 ft. ³ to cubic yards. 8.
	9.	Select the surface area of a sphere with a radius of 5 in. 9.
		a. 50 π in. ² b. $\frac{125}{3} \pi$ in. ² c. 100 π in. ²
	10	Colort the formula for the surface area of a same 10
	10.	Select the formula for the surface area of a cone. 10
		a. $S = \pi r (s + r)$ b. $S = 2\pi r^2 + 2\pi rh$ c. $S = 4\pi r^2$

1.	What is the distance between -32 a	nd +50 on the number line?	1.	
2.	What is the coefficient of the term	$\frac{2}{3}xy?$	2.	
3. 4.	Write this phrase in numbers: a number divided by three plus six Write this phrase in numbers:		3. 4.	
	five less than three times a number			
5.	Find the solution to $v - \frac{3}{4} =$	$=1\frac{3}{4}$.	5.	
6.	Find the solution to $18x + 11$	= 29.	6.	
7.	Simplify: 14xy – 6	x – 7xy + 8x – 6xy	7.	
8.	Solve: $3x - 6 =$	2x - 9	-	
0	Mark is three times as ald as his si	tor Two ware and he was	8.	
9.	a. Mark 6 yrs; sister 2 yrs c.	bir present ages are: Mark 9 yrs; sister 3 yrs	9.	
	b. Mark 15 yrs; sister 5 yrs d.	Mark 16 yrs; sister 4 yrs		
10.	Pam found that she could read 9 pa 20 minutes. At this rate, how long w to read 378 pages?	ages of a novel in vould it take her	10.	
	to read of o pageo.		1.	
1.	Change 1.6 to percent.			
2.	Find the products of (a. 4^2) and (b. 3^3).	2a	b.
3.	Find the area of a circle to the near 8.1 cm.	est tenth, with a radius of	3.	
4. Find the volume of a rectangular solid with lengt	olid with length 14 in.,	4.		
	width 8 in., and height 6 in.	height 6 in.	5.	
5.	Use the distributive property to fir $(x + 3) (y - 4)$.	d the product of	6	
6.	Translate to algebraic symbols: Two number is one less than the number	o more than four times a	0.	
7.	Write the opposites of $6, -9, 0$.		7.	
8.	The sum of four consecutive intege	ers is 18. Find the integers.	8.	
9.	Write the numeral 5,000,000 in pow	ers of ten.	9.	
10.	What is the greatest common factor	r of 12, 18, and 30?	10.	
	 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 	 What is the distance between -32 at What is the coefficient of the term Write this phrase in numbers: a number divided by three plus six Write this phrase in numbers: five less than three times a number Find the solution to y - ³/₄ = Find the solution to 18x + 11 Simplify: 14xy - 6 Solve: 3x - 6 = Mark is three times as old as his sis seven times as old as his sister. The a. Mark 6 yrs; sister 2 yrs Mark 15 yrs; sister 5 yrs Pam found that she could read 9 pa 20 minutes. At this rate, how long y to read 378 pages? Change 1.6 to percent. Find the area of a circle to the near 8.1 cm. Find the volume of a rectangular so width 8 in., and height 6 in. Use the distributive property to fin (x + 3) (y - 4). Translate to algebraic symbols: Two number is one less than the number Write the opposites of 6, -9, 0. The sum of four consecutive integer Write the numeral 5,000,000 in pow What is the greatest common factor 	 What is the distance between -32 and +50 on the number line? What is the coefficient of the term ²/₃ xy? Write this phrase in numbers: a number divided by three plus six Write this phrase in numbers: five less than three times a number Find the solution to y - ³/₄ = 1 ³/₄. Find the solution to 18x + 11 = 29. Simplify: 14xy - 6x - 7xy + 8x - 6xy Solve: 3x - 6 = 2x - 9 Mark is three times as old as his sister. Two years ago he was seven times as old as his sister. Their present ages are: a. Mark 6 yrs; sister 2 yrs c. Mark 9 yrs; sister 3 yrs b. Mark 15 yrs; sister 5 yrs d. Mark 16 yrs; sister 4 yrs Pam found that she could read 9 pages of a novel in 20 minutes. At this rate, how long would it take her to read 378 pages? Change 1.6 to percent. Find the area of a circle to the nearest tenth, with a radius of 8.1 cm. Find the area of a circle to the nearest tenth, with a radius of 8.1 cm. Use the distributive property to find the product of (x + 3) (y - 4). Translate to algebraic symbols: Two more than four times a number is one less than the number. Write the opposites of 6, -9, 0. The sum of four consecutive integers is 18. Find the integers. Write the numeral 5,000,000 in powers of ten. What is the greatest common factor of 12, 18, and 30? 	1.What is the distance between -32 and +50 on the number line?1.2.What is the coefficient of the term $\frac{2}{3}xy$?2.3.Write this phrase in numbers: a number divided by three plus six3.4.Write this phrase in numbers: five less than three times a number3.5.Find the solution to $y - \frac{3}{4} = 1 \frac{3}{4}$.5.6.Find the solution to $18x + 11 = 29$.6.7.Simplify: $14xy - 6x - 7xy + 8x - 6xy$ 7.8.Solve: $3x - 6 = 2x - 9$ 8.9.Mark is three times as old as his sister. Their present ages are: a. Mark 6 yrs; sister 2 yrs b. Mark 15 yrs; sister 5 yrs10.10.Pam found that she could read 9 pages of a novel in 20 minutes. At this rate, how long would it take her to read 378 pages?10.11.Change 1.6 to percent.1.12.Find the area of a circle to the nearest tenth, with a radius of 8.1 cm.3.4.Find the volume of a rectangular solid with length 14 in., width 8 in., and height 6 in.4.5.Use the distributive property to find the product of (x + 3) (y - 4).7.6.Translate to algebraic symbols: Two more than four times a number is one less than the number.7.7.Write the opposites of 6, -9, 0.8.8.He sum of four consecutive integers is 18. Find the integers.8.9.Write the numeral 5,000,000 in powers of ten.9.10.What is the greatest common factor of 12, 18, and 30?10.

901	1.	1	
		a. 2 b. 3 c. 4 d. $2x^3$	
	2.	The product in $2(a + b) + 5$ is a. 2 b. $(a + b)$ c. $2(a + b)$ d. 5	2
	3.	Simplifying $18(x - 1) + 9$ equals a. $18x - 9$ b. $18x - 18 + 9$ c. $18x + 9$ d. $18x + 27$	3
	4.	Simplifying $7.8x - 2.1x$ equalsa. $4.6x$ b. $5.7x$ c. $9.9x$ d. $10.9x$	4
	5.	Evaluate $xy + x$ for $x = 3$ and $y = 5$. a. 11 b. 13 c. 18 d. 20	5
	6.	Evaluate $5a^3 - 2b + c$ for $a = 2$, $b = 3$, and $c = 4$.	6
	7.	The meaning of $3x^2 - 4$ in words is	7
		 a. four less than three times the square of a number b. three times a number minus four c. four minus three times a number squared d. three times a number squared less four times the number 	
	8.	The meaning of y^3 isa. three times a numberb. a number squaredc. a number less threed. a number cubed	8
	9.	The difference of 8 - (-3) is a. 5 b5 c. 11 d11	9
	10.	The quotient of $\frac{12x^2}{-4}$ is	10
		a. 4 b. $-3x^2$ c. $8x^2$ d. $12x^2$	

902	1.	Evaluate2	-2 + 1 =			1
		a. -3	b. 0	c. 1	d. 5	
	2.	$\frac{R}{2} + 6 = 14$	<i>R</i> =			2
		a. -16	b. 8	c. 16	d. 40	
	3.	Evaluate A	$=\frac{h}{2}(a+b)$ wh	nen $h = 7$, $a =$	= 10, and $b = 12$.	3
		a. 72	b. 77	c. 87	d. 112	
	4.	Nine less that a. $3n - 9 = 50$	nn three times))	a number is f b. $9 - 3n = 50$	fifty is written 0 50	4.
		C. $9 = 5n = 50$	J	u. $3 + 9n = 3$		
	5.	The solution	n to $\frac{-x}{3} = 4$ is	•		5.
		a. <i>x</i> = - 12	b. <i>x</i> =	= -4 c. $x =$	$1\frac{1}{3}$ d. $x = 3$	
	6.	Solve $x + a$ a. $b = x + a$	= yb for b .	b. $b = y - (x + y)$	+ a)	6
		c. $b = y(x + a)$	1)	d. $b = \frac{x+a}{y}$		0
	7.	The solution	to $8(x+1) >$	$\sim 7(x+2)$ is	·	
		a. <i>x</i> > -6	b. $x > \frac{22}{15}$	c. <i>x</i> > 6	d. <i>x</i> > 10	7
	8	The solution	to $10(1 + 4)$	< 0 is		7
	0.	a. <i>y</i> < -8	b. $y < -4$	c. $y < -\frac{2}{5}$	d. $y < \frac{1}{4}$	
	9	The graph o	f the solution	to 4 y < 8	is	8.
		a. < -7-6-5-4-3	• • • • • • • • • •	$\begin{array}{c} 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 5 \\ 6 \\ 7 \end{array} \qquad \begin{array}{c} 0 \\ 1 \\ 1 \\ -7 \end{array}$	7
		c. ← + + + + + + + + + + + + + + + + + +	-2-101234	: : : → d. < : -7	-6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7	↓→ 7
	10.	The graph o	f the solution	to $ x + 3 >$	5 is	9
		a. <-⊕ -8-7-6-5-4-	3-2-101234	<mark>↓ ↓ ↓ ⊕ → b. <+</mark> 5 6 7 8 -7		↓ → 7
		c. ← 8 -7-6-5-4	3-2-101234	5 6 7 8 d. ←7	-6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7	7
						10

903	1.	12 diminished by 6 tin a. $12 + 6x$ b. $12 - 6x$	mes a number $6x$	in mathematica c. $6x - 12$ d	l symbols is l. $6x \div 12$	1
	2.	A boy is 6 years olde In mathematical sys	er than his sis nbols, the bo	ter, whose age y 's age is .	is <i>x</i> .	2
		a. 6 <i>x</i> b. 6 - :	x	c. $x + 6$ d	l. <i>x</i> - 6	
	3.	Jay has 3 more dime The equation is	es than nickels •	s. He has 25 co	ins altogether.	3
		a. 3 + d + d = 25 c. n + n - 3 = 25		 b. n + 3 + n = d. 3d + n = 25 	25	
	4.	The equation for a tag inches, and a per	4			
		a. $q + 4q + 2q = 24$ c. $q + 4q - 3q = 24$		b. $6q = 24$ d. $24 = q - 4q + 4$	+ 2q	
	5.	The larger of two nu	mbers is 5 tir	nes the smaller	number.	5
		a. 30 and 6 b. 30 a	and 24	c. 40 and 8 d.	45 and 9	
	6.	Sally has seven times is \$2.84. The number	times as man er of pennies	y dimes as penn and dimes she	ies. Their value has is	6
		a. 2 pennies, 14 dinc. 3 pennies, 21 din	nes	b. 4 pennies,d. 5 pennies,	28 dimes 35 dimes	
	7.	Jerry's age is three le their ages is twenty-	7			
		a. Jerry: 13, Larry:c. Jerry: 17, Larry:	8 10	b. Jerry: 15, I d. Jerry: 19, I	Larry: 12 Larry: 8	
	8.	Two boys who live 1 each other at rates o They will meet in _	8			
		a. 2 hrs. b. 3 hr	ſS.	c. $3\frac{1}{2}$ hrs.	d. 4 hrs.	
	9.	A man bought two lo of \$3,000 and the othe for the first lot as for	ots for the sam er at a loss of s the second. E	e price. He solo \$1,500, receiving ach lot cost	l one at a profit 5 twice as much	9
		a. \$5,540 b. \$6,0	000	c. \$7,510	d. \$8,000	
	10.	Brine is a solution of of a 5% solution of b evaporate to change	salt and water rine, the amo e it to an 8 % s	. If a tube contaunt of water the colution is	ains 50 pounds at must	10
		a. $2\frac{1}{2}$ lbs. b. 8 lb	S.	c. 12 $\frac{1}{2}$ lbs.	d. 18 $\frac{3}{4}$ lbs	

904	1.	The sum of $3c^2d^3 + (-5c^2d^3) + 10c^2d^3$ is	1
		a. $6c^2d^3$ b. $8c^2d^3$ c. $12c^2d^3$ d. $18c^2d^3$	
	_		2.
	2.	The polynomial $3 - 3x^2 + 4x + 8x^3$ arranged in	
		a $-3r^2 + 4r + 8r^3 + 3$ b $3 + 4r - 3r^2 + 8r^3$	
		c. $8x^3 - 3x^2 + 4x + 3$ d. $8x^3 + 4x - 3x^2 + 3$	
	3.	The difference of $8x^2 + 4x - 5 \text{ less } 2x^2 + 2x + 7$ is	3
		a. $6x^2 + 2x - 12$ b. $10x^2 + 2x + 2$	
		c. $6x^2 + 2x - 14$ d. $5x^2 - 6x + 2$	
		1	
	4.	The product of $-\frac{1}{2}p(4p^3+6)$ is	4
		a $2n^3 + 6n$ b $-2n^4 - 3n$ c $-2n^3 - 6n$ d $2n^3 - 3n$	
		\mathbf{u} $\mathbf{z} \mathbf{p}$ + $0 \mathbf{p}$ \mathbf{v} $\mathbf{z} \mathbf{p}$ $0 \mathbf{p}$ \mathbf{u} $\mathbf{z} \mathbf{p}$ $0 \mathbf{p}$	
	5.	The quotient of $-3d^3e^4f^5 \div 9d^5e^4f^3$ is	_
		a $\frac{ef^2}{1}$ b $\frac{-3d^2f}{1}$ c $\frac{f^2}{1}$ d $\frac{f^2}{1}$	5
		$\frac{d}{3d^2}$ $\frac{d}{e}$ $\frac{d}{6d^2e}$ $\frac{d}{3d^2}$	
	6.	The difference of $a - b$ less $b - c$ is	
		a. $a - c$ b. $-a + 2b - c$ c. $a - 2b + c$ d. $a + b - c$	6
	7.	The expression $-6(-2a - 15)$ in simplified form is	
		a. $-12a - 12$ b. $12a - 90$ c. $-12a - 30$ d. $12a + 90$	
	Q	The expression $(5d + 10n) \div (5)$ in simplified form is	7
	0.	The expression $(5u + 10p) \div (-5)$ in simplified form is	
		a. $5d - 2p$ b. $-d - 2p$ c. $d + 2p$ d. $-d - \frac{-p}{2}p$	8
	9.	Simplify $3x [2(x + 5) - 7x] :$	
		a. $-15x^2 + 30x$ b. $-36x^2 + 15x$	
		c. $-36x^2 + 30x$ d. $27x^2 + 15x$	9
	10	Simplify $(87 - 10) \div (-2) + 5(7 - 1)$.	
	10.	a. z - 10 b. 11z c. z d. 13z - 17	
			10

905	1.	The greatest common factor	of x^5y and x^4y^2 is	1
		a. x^5y^2 b. x^4y c.	xy d. x^2y	
	n	The factorization of $1/a + 7h$		2.
	۷.	a. $2(7a + 3b)$ b. $7(2a + 3b)$	b) c. $7a(2+b)$ d. $14(a+b)$	
				2
	3.	Find the trinomial product of	f $(4x + 3) (-2x - 5) :$	3
		a. $8x^2 + 14x - 15$ b.	$6x^2 - 14x - 15$	
		c. $-8x^2 - 26x - 15$ d.	$12x^2 - 26x + 15$	
	4	Find the product of $(4a + 2)$	(4a - 3).	4
	4.	$12a^2 = 0$ b $16a^2 = 0$	(4u - 5) = 0	
		a. 12 <i>u</i> - 9 b. 10 <i>u</i> - 9	6 c. $8u + 9$ d. $18u + 2u - 9$	
	5.	The binomial factors of $2x^2$ -	+7x + 3 are	5.
		a. $(2x + 3) (x + 1)$ b.	(x + 3) (2x - 1)	
		c. $(x + 3) (2x + 1)$ d.	(2x - 1) (x - 3)	
	6	Factor $81n^2 - 100$.		6
	0.	$2 (94 \ 10)^2$	(0n - 10) (0n + 10)	
		d. $(9/l - 10)$ D.	(9n - 10)(9n + 10)	
		c. $(81n + 10)(n - 10)$ d.	$(9n + 10)^{-1}$	
	7.	The factors of $2 - 98n^2$ are		7
		a. $-2(7n - 1)(7n + 1)$ b.	7	
		c. $-2(1 - 7n)(1 + 7n)$ d.	$-2(49n^2 - 1)$	
	0	$T = (1 + 3 + 6)^2 + 4$		o
	8.	The factors of $16y^2 + 68y^2 + 4$	$2y \text{ are } _$.	0
		a. $2(4y + 7)(2y + 3)$ b.	4y(2y + 5)(2y + 2)	
		c. $(4y^2 + 14y)(4y + 3)$ d.	2y(2y+7)(4y+3)	
	9.	The formula for area is $A = la$	w.	9
		If a rectangle has an area of 2:	$x^2 + x - 3$, its dimensions are .	
		a. 1: $2x - 1$ w: $x + 3$ b.	l: 2 <i>x</i> + 1 w: <i>x</i> - 3	
		c. 1: $2x - 3$ w: $x + 1$ d.	l: $2x + 3$ w: $x - 1$	
	10		$r = far = tatal each of 2\pi l^2 + 2\pi l + c$	10
	10.	A person purchased $5k + 2$ item	Its for a total cost of $35k^2 + 29k + 6$.	
		The average cost per item was $a_k + 2$ $b_k + 2 + 3$	$7k \pm 2$ d $7k \pm 3$	
		$\mathbf{a}, \mathbf{b}, \mathbf{a} \in \mathbf{b}, \mathbf{b}, \mathbf{c} \in \mathbf{C}$	$n \pm 2$ u. $n \pm 3$	

8.	The formula for area <i>A</i> of a tr	8	
	height <i>h</i> is $A = \frac{1}{2}(a + b)h$.		
	Rewritten with \overline{a} as the subject of the subj	ect is	
	a. $a = \frac{2Ah}{b}$ b. $a = \frac{A}{2h} - b$	c. $a = \frac{2A+b}{h}$ d. $a = \frac{2A}{h} - b$	
9.	A person drives to a destination returns over the same route at three hours, the distance to th a. 55 mi. b. 56 mi.	on at a rate of thirty-five mph and forty mph. If the round trip takes e destination is c. 57 mi. d. 58 mi.	9
10.	The present ages of a husband seven to six. Five years ago th Their ages now are a. h: 35 yrs w: 30 yrs c. h: 49 yrs w: 42 yrs	d and wife are in the ratio of he ratio was six to five. b. h: 41 yrs w: 35 yrs d . h: 56 yrs w: 49 yrs	10

907	1.	Three examples of irratio	nal numbers	are	1
		a. $4\frac{1}{5}$, 0.283, -81.7	b. $\frac{2}{9}$, $\sqrt{16}$,	-6	
		c. 0.1237285, $\sqrt{26}$, $\frac{\pi}{2}$	d. 0.3, -6.2	$\overline{34}$, $\frac{1}{99}$	
	2.	The decimal 0.292292229	rounded to th	ne nearest	2
		a. 0.3 b. 0.29	c. 0.292	d. 0.2923	
	3.	The graph of $1 < k < 5$	for integers is	S	
		a. -7-6-5-4-3-2-1 0 1 2 3 4	⊕ + + > 5 6 7 b. -7	7-6-5-4-3-2-101234567	3. →
		c. -7-6 -5 -4 -3 -2 -1 0 1 2 3 4	● + + > d. <+ 5 6 7 d7	7-6-5-4-3-2-101234567	→
	4.	$\sqrt[3]{64a^6} = $.			1
		a. $4a^3$ b. $4a^2$	c. $8a^2$	d. undefined	T
	5.	The indicated sum and/o	r difference o	of $2\sqrt{x} - 3\sqrt{x^3} + 5\sqrt{x}$ is	<u>_5.</u>
		a. $7\sqrt{x} - 3x\sqrt{x}$	b. $4\sqrt{x}$		
		c. $10\sqrt{x}$	d. $3\sqrt{x} - 3x^{2}$	\sqrt{x}	
	6.	The difference of $2\sqrt{18y}$	$\sqrt{3} - 3\sqrt{8y^3}$ is		6
		a. $-y\sqrt{y}$	b. $-2y\sqrt{y}$		
		c. $4y^2\sqrt{3y} - 6y^2\sqrt{2y}$	d. 0		
	=	TTI 1161 1 1	$(\dots, n)/n^2$		7
	7.		$f(x + 2\sqrt{3})^{-1}$	15	
		a. $x^2 + 4\sqrt{3x} + 12$	b. $x^2 + 12x - $	+ 12	
		c. $2x + 4\sqrt{3}$	d. $x^2 + 12$		8
			$\sqrt{96x^3}$		··
	8.	The simplified quotient of	of $\overline{\sqrt{2x}}$ is _		
		a. $x\sqrt{48x}$ b. $4x\sqrt{3}$	c. $4\sqrt{5x}$	d. $4x\sqrt{3x}$	

9. The exact irrational root (E) and the rational approximation (A) 9. _____ to the nearest tenth of $\sqrt{8}p = 6$ are ___.

a. E:
$$\frac{\sqrt{2}}{3}$$
 A: 0.5 **b.** E: $4\sqrt{3}$ A: 6.9 **c.** E: $12\sqrt{2}$ A: 17.0 **d.** E: $\frac{3\sqrt{2}}{2}$ A: 2.1

10. Solve
$$a - 1 = \sqrt{2b} + 3$$
 for b : ____.

a. $b = \frac{a^2 - 2a - 2}{2}$ **b.** $b = \frac{a\sqrt{2} + 2}{2}$ **c.** $b = \frac{a^2 - 4}{2}$ **d.** $b = \frac{a - \sqrt{2}}{4}$ 10. _____





8.

9.

- 9. A line passes through two points, (-3, -4) and (2, 5).The equation of the line is _____.a. 7x + 9y + 57 = 0b. 5x + 5y 35 = 0c. 9x 5y 43 = 0d. 9x 5y + 7 = 0
- **10.** The equation of a line that passes through (2, 2) and (2, -3) is ____. 10. **a.** x - 1 = 0 **b.** 2x - 3y = 0 **c.** x - 2 = 0 **d.** x + 3 = 0



Using the comparison method, the solution set for 7. 7. the system $\begin{bmatrix} 2x + y = 1 \\ 9x + 3y = -3 \text{ is } \end{bmatrix}$ **a.** { (0, 1) } **b.** { (2, -7) } **c.** { (-2, 5) } **d.** inconsistent equations 8. _____ 8. Using the substitution method, **the solution set for** the system $\begin{bmatrix} 3x + y = 1 \\ y = 5x - 4 \text{ is } \end{bmatrix}$ **a.** { $(\frac{5}{8}, -\frac{7}{8})$ } **b.** { (1, 1) } **c.** { (2, -5) } **d.** inconsistent equations A school sold 480 tickets to its play. The adult tickets cost \$2.00, 9. 9. and the children's tickets cost \$1.50 each. If \$820 was collected, the number of each type of ticket that was sold was ____. **a.** A: 200 C: 280 **b.** A: 180 C: 300 C: 320 **c.** A: 160 **d.** A: 150 C: 330 The sum of \$12,000 was invested, part at 12% interest and part at 10. 10. 8% interest. Twice as much money was invested at 8% as at 12%. The amount of money invested at each rate was ____. **a.** 8%: \$9,000 12%: \$3,000 **b.** 8%: \$8,000 12%: \$4,000 **c.** 8%: \$4,000 12%: \$8,000 **d.** 8%: \$6,000 12%: \$6,000

Solve the equation by completing the square: $x^2 + 5x - 5 = 0$ 1. 910 1. **a.** $\frac{-5 \pm 3\sqrt{5}}{2}$ **b.** $\frac{5\sqrt{-3}}{5}$ **c.** $\frac{-5 - 3\sqrt{-3}}{3}$ **d.** $\frac{-1 + 5\sqrt{-5}}{2}$ **Solve the equation using the quadratic formula:** $2x^2 + x = 15$ 2. 2. _____ **a.** $\{\frac{3}{5}, -15\}$ **b.** $\{\frac{5}{2}, -3\}$ **c.** $\{\frac{15}{2}, 1\}$ **d.** $\{\frac{5}{2}, -2\}$ **Solve the equation by factoring:** $6x^2 - 24 = 0$ 3. **b.** $\{(-2, 2)\}$ **c.** $\{(-4, 4)\}$ **d.** $\{(2)\}$ **a.** $\{(-4, -6)\}$ 3. _____ **Solve:** 4(3y - 2) + 5(y + 8) = 04. 4. _____ **a.** $y = 2 \frac{14}{17}$ **b.** $y = 1 \frac{2}{3}$ **c.** $y = \frac{2}{3}$ **d.** $y = -1 \frac{15}{17}$ **Find the quotient:** $(36x^3 - 24x^2 - 18x) \div 6x$ 5. **a.** $6x^2 - 4x - 3$ **b.** $6x^3 - 4x^2 - 3x$ **c.** $6x^3 + 4x^2 + 3x$ **d.** $36x^3 - 24x^2 - 3$ 5. 6. Solve. $\frac{d-3}{6d} + \frac{d^2+4d+2}{18d^2} =$ ____. **b.** $\frac{d^2 + 4d - 1}{18d^2}$ **a.** $\frac{d^2 + 4d + 2}{2d}$ 6. **c.** $\frac{d^2 + 7d - 7}{18d^2}$ **d.** $\frac{4d^2-5d+2}{18d^2}$ 7. Simplify: $\frac{4-\sqrt{3}}{\sqrt{15}}$ **a.** 4 $\sqrt{-3(15)}$ **b.** 60 $\sqrt{-45}$ 7. c. $\frac{4\sqrt{15}-3\sqrt{5}}{15}$ **d.** $\frac{4\sqrt{15}+3\sqrt{15}}{15}$ Solve this system by the most convenient algebraic method. 8. x = -2y + 6

3x = 4y + 8**a.** { (4, 1) } **b.** { (-1, 4) } **c.** { (6, -3) } **d.** { (4, 8) }

8. _____

- 9. Which graph is the solution of |x| 8 > 2?

 - **d.** -12-11-10-9-8-7-6-5-4-3-2-1 0 1 2 3 4 5 6 7 8 9 10 11 12
- 10. The area of a triangle is one-half times the base times the height. If the area is 54 sq. in. and the height is 12 in, what is the base?
 a. 21 in.
 b. 6 in.
 c. 9 in.d. 15 in.

10.

1001	1.	The name for A	$\stackrel{B}{\longrightarrow}$ is		1				
		a. point A b. \vec{A}	c. plane <i>AB</i>	d. \overrightarrow{AB}					
	2.	The name for $\int F$	7 is .		2				
			/						
		a. point F b. \overrightarrow{F}	c. plane <i>P</i>	d. plane <i>F</i>					
	3.	The name for $K \bullet$ is	a dat V	d mlana V	3				
		a. point K D. inte K	c. dot K	u. plane K					
	4.	The set of all possible po	ints is		4.				
		a. space	b. collinear points	_					
		c. coplanar points	d. betweenness of	points					
	5.	Point <i>B</i> is between <i>A</i> and	5.						
		equation $AB + BC = AC$ is							
		This sentence is the defin	h collinger register						
		a. space	b. connear points	nointa					
		c. copianai points	u. Detweetilless of	points	(
	6.	A statement accepted wit	hout proof is a		6				
	0.	a. bisector b. theorem	c. postulate	d. rav					
			1						
	7.	A general statement that	can be proved is a(n	.)	7.				
		a. axiom b. theorem	c. postulate	d. ray					
	8.	The following statement	8						
		a. Through any two differ							
		not on the line.							
		c. If two planes intersect, then their intersection is a line							
		d. One and only one of th	e following is true.	a = b, a > b, a < b					
		5	0		9.				
	9.	The line through <i>A</i> and <i>B</i>	is $A\overrightarrow{B}$. The length of	segment \overline{AB} is AB	3.				
		The ray starting at A and passing through B is \vec{AB} .							
		These descriptions are of	•						
		a. undefined terms	b. defined to	erms					
		c. postulates	d. theorems						
	10	For any two points only o	10.						
	10.	A line is straight. Two pla	line.						
		These descriptions are of							
		a. undefined terms	b. defined to	erms					
		c. postulates	d. theorems						

1002 Some roses are red or some violets are blue **is an example of** _____. 1. 1. **a.** conjunction **b.** disjunction **c.** conditional **d.** intersection 2. If a point lies on a line, then the line contains the point. 2. The converse of this statement is "If a line contains a point, then the point lies on the line." Converse Using the truth table, this statement is ____. р q $q \rightarrow p$ **a.** true Т Т Т **b.** false Т F Т **c.** sometimes true or false F Т F **d.** neither true nor false F F Т 3. **Choose from** (a. deductive reasoning b. inductive reasoning). 3. / 1) reasoning is making a general conclusion based on specific examples, and 2) _____ is making a conclusion by fitting a specific example into a general statement. 4. P Given: 4. **Conclusion:** l_1 and l_2 intersect only at point *P*. The general principle that justifies the conclusion is ____. **a.** definition of midpoint **b.** definition of bisector **c.** theorem: if two lines intersect, their intersection is one point **d.** postulate: if a plane contains a line, it contains the point on the line **Given:** *l* is in plane *M* 5. 5. *t* is on line *l* **Conclusion:** *t* is in plane *M*. The general principle that justifies the conclusion is ____. **a.** postulate: a line contains at least two points **b.** postulate: if a plane contains a line, it contains the point of the line **c.** theorem: if two lines intersect, then one plane contains both lines **d.** definition of line segment In a two column proof, the statement of the theorem is ____. 6. 6. **b.** preceded by *then* **a.** not essential to the proof **c.** includes a lettered figure d. written in *if-then* form 7. The given conditions of a proof are ____. 7. **a.** the part you want to prove **b.** always postulates **c.** the hypothesis of the statement; **d.** not expressed in terms of letters the part that follows the *if* or numerals used in the figure The to prove part of a proof is the ____. 8. **a.** part that follows *if* **b.** second part of a 2-column proof **c.** follows the word *then;* **d.** actual proof 8. the part you want to prove

9. Given: *a* = *b*

a ≠ c

Prove: $b \neq c$

The indirect proof is ____.

- **a.** Suppose b = c. Then a = c by the transitive property. But we know that $a \neq c$. This statement is a contradiction. Therefore, our supposed relationship is false, and its negation is true.
- **b.** Suppose a = c. Then b = c. But we know that a = b and not $a \neq c$. Therefore, $b \neq c$.
- **c.** Suppose a > 25, such as a = 26. Then 2(26) < 51 or 52 < 51. This is a contradiction, so a > 25 is false and a < 25 is true.
- **d.** Suppose a = 2. Then $(2)^2 + 2 = 8$, which means 6 = 8. This is a contradiction because 8 = 8. Therefore, a = 2 is false and $a \neq 2$ is true.

10.

10. A triangle cannot have two right angles. Suppose a triangle has two right angles. Then the sum of the angles would be more than 180°, but this fact contradicts the fact that the sum is 180°. Therefore, that a triangle cannot have two right angles is true. The theorem for this indirect proof is ____.
a. Given: an isosceles triangle

- a. Given: an isosceles triangle To Prove: an isosceles triangle cannot have two right angles
 b. Given: the sum of the angles of a triangle equals 180°, and a right angle equals 90°
 To Prove: a right triangle cannot have two right angles
 c. Given: a triangle
 To Prove: a triangle has 180°
- To Prove: a triangle has 180°
 d. Given: the sum of the angles of a triangle equals 180°
 To Prove: a right angle equals 90°

1003		/			1
	1.	The angle	is a(n) angle.		
		a. 80°	b. obtuse	c. right d. acute	
	2.	In the diagram, r	$n \ \angle ABC = 15^{\circ} 10' \ 12$	2″ A	2
		and m $\angle CBD =$	31° 52′ 48″.	× Correction	
		The measure of	$\angle ABD = _$.		
				В 🖉 👘	
		a. 16° 42′ 36″	b. 47° 2′ 50″ c. 4	7° 3′ d. 47° 13′	
	3.	$\angle A$ and $\angle B$ are s	upplementary. If \angle	$A = 55^{\circ} 28',$	3
		then $\angle B = .$			
		a. 35° 28′	b. 44° 32′	c. 124° 32′ d. 125° 2	8'
	4.	$\angle V$ and $\angle W$ are	vertical angles. If	$\angle V = 72^{\circ}$, then $\angle W =$	• 1
		a. 18°	b. 28°	c. 72° d. 108°	- 4
	5.	Planes that have	no point in commor	n are called planes.	5.
		a. equivalent	b. perpendicular	c. similar d. parall	el
	6.	A line that inters	ects two or more co	planar lines in different	6
		points is called a	·		
		a. transversal	b. perpendicular	c. parallel d. skew	line
	7	Triangle ABC is	$^{B}\Lambda$		7
	/.	a(n) triangle	4/	Λ^4	/
			$A \square$	\sum_{C}	
		a. scalene	b. equilateral	c. right d. isosce	les
			- -	ΛV	
	8.	\triangle UVW is a(n) _	_ triangle.	40°	8
			\bigwedge	7	
		a a susila tanal	$U \leq 60^{\circ}$	(80°) W	
		a. equilateral	b. acute	c. obtuse a. right	
	9.	Given: $m \angle CBL$	$D = m \angle DBE$	C	9
		Prove: $m \angle ABC$	$C + m \angle DBE = 180^{\circ}$	A B D	··
		The proof is		E	
		Statement	Reason	<u>Statement</u>	Reason
	a. 1	. BC and BE	1. Given	b. 1. $DB \perp CE$	1. Given
	n	intersect at B (ABC / CBD)	2 Exterior		2 l's form
	2	are $2 \text{ MBC}, 2 \text{ CDD}$	sides in	$\angle CDD, \angle DDL$ rt $\angle s$	rt. \angle 's
		supplementary	opposite rays	3. m $\angle CBD = m \angle DBE$	3. all rt. \angle 's
	3	$m \angle CBD$	3. Two ∠'s supple-	4. $\angle ABC$, $\angle CBD$	4. Exterior sides
		$= m \angle DBE$	mentary to	supplementary	in opposite
	А		same $\angle =$.	5 m / ADC	rays
	4	are $\angle CDU, \angle ABE$	4. Same as	$\frac{1}{100} + m / CRD$	5. Demittion of supplementary
		supplementary	5 kp 2	= 180°	
	5	$m \angle ABC$	5. Same as	6. m $\angle ABC + m$	6. Substitution
		$= m \angle ABE$	Step 3	$\angle DBE = 180^{\circ}$	
					I

Statement	Reason		Statement		Reason
c. 1. $m \angle CBD = \angle DBE$	1. Given	d. 1.	$m \angle CBD = m \angle DBE$	1.	Given
2. $\angle ABE$, $\angle DBE$	2. Exterior	2	$\angle ABC, \angle CBD$	2.	Exterior
are	sides in		are supple-		sides in
supplementary	opposite rays		mentary		opposite rays
3 m/ABF	3 Definition of	З	m / ABC	3	Definition
$\frac{1}{2}$ $\frac{1}$	supplementary	,	$m \ge MDC$	J ³ .	of supple
$+ \Pi \succeq DDE$	supplementary	/	$+ \Pi \angle CDD$		of supple-
$= 180^{\circ}$	\angle s		$= 180^{\circ}$		mentary \angle 's
4. m $\angle ABE$	4. Substitution	4.	$m \angle ABC$	4.	Substitution
$+ m \angle CBD = 180^{\circ}$			$+ m \angle DBE = 180^{\circ}$		
10 Cincer A DCT			XT	Ŷ	• 10
10. Given: $\triangle KSI$		1000	4 3 5		10.
Prove: $m \ge 1 + m$	$n \angle 2 + m \angle 3 =$	= 180°			
The proof is			$R \swarrow 1$ 2	7	S
Statement	Reason		Statement		Reason
a. 1. Through	1. Auxiliary	b. 1.	Through	1.	Auxiliary
T draw	line		T draw		line
\overrightarrow{XY} ++ \overrightarrow{RS}			$\overrightarrow{XY} \mid \mid RS$		
2. m $\angle XTS$	2. Exterior sides	2.	rt. isosceles	2.	Given
$+ m \angle 5 = 180^{\circ}$	in opposite ray	'S	$\triangle RST$		
3. m $\angle XTS$	3. Angle	3.	RT = ST	3.	Definition of
$= m \angle 4$	addition				isosceles \triangle
$+ m \angle 3$	theorem	4.	$\angle 3$ is rt	4.	Definition of
4. m $\angle 4$ +	4. Substitution	-	$\angle = 90^{\circ}$	-	rt∠
$m \ge 3 +$		5.	$m \angle l =$	5.	Base \angle 's of
$m \ge 5 = 180^{\circ}$	E If lines	6	$m \angle 2$	6	1sosceles $\triangle =$
5. If $\angle 1 =$	thon	0.		0.	Acute \geq s of it.
$m \neq 4$	alternate		mentary		mentary
$m \neq 2 =$ m $\neq 5$	interior $\angle s =$	7	$m \neq 1 + m \neq 2$	7	Angle
6. $m \angle 1 + m$	6. Substitution	7.	$+ m \angle 3 = 180^{\circ}$		addition
$\angle 2 + m \angle 3 = 180^{\circ}$					theorem
Statement	Reason		Statement		Reason
c. 1. \triangle <i>RST</i> with	1. Given	d. 1.	Through T draw	1.	Auxiliary
exterior \angle 's			$\widetilde{XY} \mid \mid RS$		line
4 and 5		2.	$m \angle 1 = m$	2.	If two lines
2. $m \angle 1 + m$	2. Sum of		$\angle 4, m \angle 2$		are cut by a
$\angle 2 + m \angle 3$	measures		$= m \angle 5$		transversal,
$= 180^{\circ}$	of \angle 's of				then correspond-
	$\triangle = 180^{\circ}$	•	(1/77.0	•	$\operatorname{ing} \angle \operatorname{s} \operatorname{are} = .$
3. m $\angle 3 + m$	3. Exterior	3.	$m \angle XTS +$	3.	Exterior sides
$\angle 4 + m \angle 5$	sides in	А	$m \angle 5 = 180^{\circ}$		in opposite rays
$= 180^{\circ}$	opposite rays	4.	$ \begin{array}{c} \text{III} \ \angle \ AIS + \\ \text{m} \ \angle \ 2 - 180^{\circ} \end{array} $		4. Substitution
		5	$\frac{111}{2} = 100^{\circ}$		5 Angle addition
		5.			theorem
			$\angle 4 + \angle 3$		theorem
		6.	$\angle 2 + \angle 3$		6. Substitution
			$+ \angle 4 = 180^{\circ}$		
		32			



5.	Given: $\angle S = \angle T$	-		S T	5
	RV = UV		A	× v	
	Prove: $SR = TU$			$1 \sim 2$	
	The proof is				
	R				
	Statement	Reason		Statement	Reason
a.	1 $\angle S$, $\angle T$ are	1. Given	b.	1. $\angle S = \angle T$	1. Given
	rt. \angle 's $SV = TV$			RV = UV	
	$2. \angle 1 = \angle 2$	2. Vertical		2. $\angle 1 = \angle 2$	2. Vertical
	3 $\land RSII \simeq \land IITV$	\angle s are =.		3 $\land RSV \simeq \land IITV$	\angle s are =.
	4. SR = TU	4. CPCTE		4. SR = TU	4. CPCTE
	Statement	Reason		Statement	Reason
c.	1. $\angle S = \angle T$	1. Given	d.	1. $\angle S = \angle T$	1. Given
	V is midpoint			RV = UV	
	$\frac{01 \text{ KI}}{2 \text{ (1 = (2))}}$	2 Vertical		$US \perp SK$ RT \perp TH	
	_ , <u>_</u> <u>_</u> <u>_</u> <u>_</u>	\angle 's are =.		2. $\angle S$ is rt. \angle	2. \perp lines
	3. $RV = TV$	3. Definition		$\angle T$ is rt. \angle	form rt \angle 's.
		of		3. $\angle S = \angle T$	3. All rt \angle 's =.
	$\Lambda \wedge RSV \simeq \wedge \Pi TV$	$\frac{1}{4}$ SSA		4. $\angle 1 = \angle 2$	4. Vertical \angle 's
	4. $\Delta RSV = \Delta UIV$ 5. $SR = TU$	5. CPCTE		5. $\triangle RSV \cong \triangle UTV$	5. HA
				6. SR = TU	6. CPCTE
6.	Given: $RT = ST$	MT = NT			
	Prove: $\angle RNT = 1$	ightarrow SMT			6.
	The proof is	T		T	Т
		\bigwedge^{I}		\bigtriangleup	\wedge
				/ × ;	\times
	М			$f \rightarrow \sum_{x} \langle$	f
	1/1				
	R	s		R	$\mathcal{A}_{\mathcal{A}}$
	Statement $1 PT - ST$	Reason	<u> </u>	1 PT - ST	Reason S
d.	1. $KI = SI$ SM + TR	1. Given	υ.	1. $KI = 5I$ / $TRN = / TSM$	I. Given
	$RN \perp TS$			2. $\angle T = \angle T$	2. Reflexive
	2. $\angle TMS$ is rt. \angle .	2. \perp lines		3. \triangle <i>RTN</i> $\cong \triangle$ <i>STM</i>	3. AAS
	\angle TNR is rt. \angle .	form rt. \angle 's		4. $\angle RNT = \angle SMT$	4. CPCTE
	3. $\angle I = \angle I$ $A \wedge RTN \simeq \wedge STM$	3. Reflexive $4 H \Delta$			
	5. $\angle RNT = \angle SMT$	5. CPCTE			
	Statement	Reason		Statement	Reason
c.	1. $MT = NT$	1. Given	d.	1. $RT = ST$	1. Given
	KN = SM	2 Reflevivo		MI = NT	2 Reflevive
	$2. \angle I = \angle I$ $3. \triangle RTN \cong \triangle STM$	3. SSA		$2. \ \angle I - \angle I$ $3. \ \triangle RTN \cong \triangle STM$	3. SAS
	4. $\angle RNT = \angle SMT$	4. CPCTE		4. $\angle RNT = \angle SMT$	4. CPCTE

7.	Given: $\angle DBC =$ Prove: $\angle ABC > ABC$	$\angle RST$ $\angle RST$	R	R			
	Statement	Reason	Statement	J Reason			
a.	$1 \angle DBC = \angle RST$	1. Given b	• 1. \angle DBC = \angle RST	1. Given			
	2. $\angle ABC = \angle DBC$	2. \angle addition	2. $\angle ABC = \angle DBC$	2. \angle addition			
	$+ \angle ABD$	theorem	$+ \angle ABD$	theorem			
	3. $\angle ABC > \angle DBC$	3. If $a = b + c$ and $c > 0$, then $a > b$.	3. $\angle ABD < \angle RST$	3. Substitution			
	4. $\angle ABC > \angle RST$	4. Substitution					
	Statement	Reason	Statement	Reason			
c.	1. $\angle DBC = \angle RST$	1. Given d	$\bullet 1. \ \angle DBC = \angle RST$	1. Given			
	2. $\angle ABC = \angle ABD$	2. \angle addition	2. $\angle ABC = \angle ABD$	2. \angle addition			
	$+ \angle DBC$	theorem	$+ \angle DBC$	theorem			
	3. $\angle ABC > \angle ABD$	3. If $a = b + c$	3. $\angle ABC = \angle ABD$	3. Substitution			
		and $c > 0$,	$+ \angle RST$				
		then $a > b$.	4. $\angle ABD < \angle RST$	4. If $a = b + c$ and			
				c > 0, then $a > b$.			

8. The longest segment shown in the figure is ____.

a. \overline{AB}



8.

9. A true statement about a parallelogram is ____.

b. *BD*

- **a.** A parallelogram is not a quadrilateral.
- **b.** The diagonals of a parallelogram bisect each other.
- **c.** No two angles of a parallelogram are equal.
- **d.** A parallelogram is a type of trapezoid.

10. A true statement about a trapezoid is ____.

- a. A trapezoid can be a rectangle.
- **b.** A trapezoid has eight midpoints.
- c. A trapezoid always has perpendicular diagonals.
- **d.** A trapezoid has two bases that are parallel, two legs that are not parallel, and a median.

10.

9.

35

7.








 9. The length of x is ____.
 9. _____

 a. 1
 b. $2\frac{1}{4}$

 c. 3
 d. 4

 10. The length of x is ____.
 8

 a. 4
 b. 8

 c. 10
 d. 12











9. Prove: The diagonals of a square are perpendicular.

The proof is ____.

is _____
$$C(a, a)$$

= $\sqrt{c^2 + d^2}$

a.
$$AD = \sqrt{c^2 + d^2}$$

 $BC = \sqrt{(b + c - b)^2 + d^2} = \sqrt{c^2 + d^2}$
 $AB = \sqrt{b^2} = b$
 $CD = \sqrt{(b + c - c)^2 + (d - d)^2} = \sqrt{b^2} = b$

- **b.** $AC = \sqrt{(-a)^2 + b^2} = \sqrt{a^2 + b^2}$ $BD = \sqrt{a^2 + b^2}$
- c. ${}^{m}AC = \frac{a \cdot 0}{a \cdot 0} = 1$ ${}^{m}AC \stackrel{\bullet m}{=} BD = -1$ ${}^{m}BD = \frac{a \cdot 0}{0 \cdot a} = -1$ $\therefore \overline{AC} \perp \overline{BD}$
- **d.** *M* is midpoint of \overline{AC} and midpoint of \overline{BD} .

$${}^{m}AD = \frac{2k}{2j \cdot b} \qquad {}^{m}AB = 0$$
$${}^{m}BC = \frac{2k}{2j \cdot b} \qquad {}^{m}DC = \frac{2k \cdot 2k}{2j \cdot 2j + b} = 0$$
$${}^{\overline{AD}} + {}^{\overline{BC}} \qquad {}^{\overline{AB}} + {}^{\overline{DC}}$$

: *ABCD* is a parallelogram.

The proof is __•

a.
$${}^{m}AB = \frac{0}{a} = 0$$
$${}^{m}CD = \frac{0}{b-d} = 0$$

Slopes are equal, ∴ segments | |.

b.
$$MN = \sqrt{\left(\frac{a+b}{2} - \frac{d}{2}\right)^2} = \frac{a+b-d}{2}$$
$$AB = \sqrt{a^2} = a$$
$$CD = \sqrt{(b-d)^2} = b-d$$
$$MN = \frac{1}{2}(AB + CD) = \frac{1}{2}(a+b-d)$$
c.
$$AM = \sqrt{a^2 + b^2}$$
$$BC = \sqrt{4a^2 + 4b^2} = \sqrt{4(a^2 + b^2)} = 2\sqrt{a^2 + b^2}$$
$$\sqrt{a^2 + b^2} = \frac{1}{2}(2\sqrt{a^2 + b^2})$$
$$AM = \frac{1}{2}(BC)$$
d.
$$mAC = \frac{c}{a+b} \qquad a^2 = b^2 + c^2$$
$$mBD = \frac{c}{b-a} \qquad a = \sqrt{b^2 + c^2}$$
$$AB = a$$
$$\frac{c}{a+b} = -\frac{b-a}{c} \qquad BC = \sqrt{b^2 + c^2}$$

 $c^2 = a^2 - b^2$ $\therefore AB = BC \text{ and } ABCD \text{ is a rhombus.}$

1010	1. The midpoint of the segment joining points (a, b) and (j, k) is a. $(j - a, k - b)$ b. $(\frac{j-a}{2}, \frac{k-b}{2})$ c. $(j + a, k + b)$ d. $(\frac{j+a}{2}, \frac{k+b}{2})$						
	2.	The area of The length	a square is 36 of the diagon	al of the squ	are is	<u>-</u>	2
	3.	a. $36 \vee 2$ Point <i>T</i> is the coordinate of a (0, 8)	b. $6 \vee 2$ the midpoint of of <i>J</i> is (0, 2). T b (0, 3)	c. $3 \vee 2$ f \overline{JH} . The coo The coordinat	d. 6 rdinate of <i>T</i> is (0, 5) te of <i>H</i> is d (0, 11)	and the	3
	4.	The measur and $x + 45^{\circ}$.	es of the angle $x = $	es of a quadr	ilateral are $x, x, x +$	15°,	4
	5.	a. 75°The completiona. obtuse	 b. 105° ement of an a b. straight 	c. 100° cute angle is c. 90°	 d. 95° a(n) angle. d. acute 		5
	6.	If $\frac{a}{b} = \frac{2}{5}$, the a , $\frac{a}{5} = \frac{5}{5}$	en b. $\frac{b}{2} = \frac{2}{2}$	c . $\frac{b}{a} = \frac{5}{a}$	d . $2a = 5h$		6
	7.	For stateme Which of the	a = 5 nts <i>p</i> and <i>q</i> , <i>f</i> re statements b <i>a</i>	a = 2 "p \to q" is falmust be fals c n and a	se; " p or q " is true. e?		7
	8.	8. Find the equation of a line through point (2, 5) and having a slope of $\frac{3}{7}$.				8	
		a. $3x - 7y =$ c. $7x - 3y =$	-29 15	 b. 3x + 7y d. 7y + 3y 	= 29 = 15		
	 9. Find the area of a 120° sector of a circle whose radius is 6. a. 15π b. 12π c. 18π d. 10π 10. The graph of { (x, y): x = 2 and y < 1} is . 					9	
		a.	b.	↓ ↓ μ	c.	d.	10
			→ +;} x				x

1101	1.	Given <i>A</i> = { a. {1, 2, 3, 4, c. {2, 4}	1, 2, 3, 4, 5} a 5, 6, 8, 10}	nd $B = \{2, 4, 4, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5,$	$\{4, 6, 8, 10\}, A \cap B $ is $\{1, 3, 5\}$ $\{6, 8, 10\}$	1
	2.	Given $C = \{x \mid x \text{ is a } x \}$	$x \mid x \text{ is a who}$ perfect squa	le number} re < 100}, <i>C</i>	and $U \cup D$ is	2
		 a. the set of b. the set of c. {1, 4, 9, 16 d. {1, 2, 3, 4, 	all whole nu perfect squar 5, 25, 36, 49} 5, 6, 7, 8, 9}	mbers res < 100		
	3.	$10 \div 5 + 6 \div 3$	3 =			3
		a. $\frac{10}{33}$	b. 1	c. 4	d. $2\frac{2}{3}$	
	4.	$3 + 4 \div 2 + 6$	(9 - 3) ÷ 12 +	1 =		
		a. $3 \frac{8}{13}$	b. $4 \frac{7}{24}$	c. $7\frac{1}{2}$	d. 9	4
	5.	The domain a. {4, 6, 8}	of set <i>E</i> = { b. {5, 7, 9}	(4, 5), (6, 7), c. {4, 6, 9}	(8, 9) } is d. {5, 6, 7, 9}	5.
	6.	Given that <i>f</i>	$f(x) = 2x^2 + 3,$	<i>f</i> (3) =		
		a. 29	b. 21	c. 15	d. 9	6
	7.	$5c \bullet 5c \bullet c \bullet$	c written in	exponential	notation is	
		a. 5^2c^4	b. $25c^3$	c. $2 \bullet 5 \bullet 4$	4 • c d. $5^{3}c^{3}$	7
	8.	$4^0 = \$ a. 0	b. 1	c. 4	d. 40	8
	9.	The fraction	$\frac{1}{6^3}$ written w	vith a negati	ive exponent is	
		a. 1 ⁻⁶	b. 6 ⁻³	c. 3 ⁻⁶	d. $(\frac{1}{6})^{-3}$	9
	10.	$\frac{a^3b^2}{a^{-1}b^{-3}}$ =				
		a. ab	b. a^2b^{-1}	c. a^4b^5	d. $\frac{b}{a^2}$	10

1102	1.	-4 =	1.
	2	a. -4 b. 0 c. 1 d. 4 $(-105) \div (-5) =$	2.
	2.	a. -21 b. -20 c. 20 d. 21	
	3.	The solution of $\frac{x}{8} = 42$ is	3
		a. $x = 336$ b. $x = 210$ c. $x = 5\frac{1}{4}$ d. $x = 0.2$	
	4.	The solution of $4(7 - 3x) = 7(4 - 2x)^{4}$ is	4.
	5	a. $x = -5$ b. $x = -2$ c. $x = 0$ d. $x = 3$ The graph of $5x > 25$ is	
	J.	The graph of $3x > 20$ is	5.
		a. $(-7-6-5-4-3-2-1) 0 1 2 3 4 5 6 7$ b. $(-7-6-5-4-3-2-1) 0 1 2 3 4 5 6 7$ b. $(-7-6-5-4-3-2-1) 0 1 2 3 4 5 6 7$	
		c. $\leftarrow 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 $	
	6.	The graph of $3(2x + 5) \ge 2(x + 6)$ is	6
		a. $\leftarrow 1$ \downarrow	
		$-7-6-5-4-3-2-1\frac{1}{4}$ 0 1 2 3 4 5 6 7 7 0 0 1 0 2 1 0 1 2 0 1 0 0 7	
		$-7-6-5-4-3-2-1\ 0\ 1\ 2\ 3\frac{3}{8}4\ 5\ 6\ 7$ $-7-6-5-4-3-2-1\frac{3}{4}0\ 1\ 2\ 3\ 4\ 5\ 6\ 7$	
	7.	The graph of $ y + 2 > 6$ is	
		a	7
		a. \bigcirc 1 1 1 1 1 1 1 1 \bigcirc 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
		c. $\xrightarrow{-7-6}{-5-4} - 3-2-1 0 1 2 3 4 5 6 7$ d. $\xrightarrow{-7-6}{-5-4} - 3-2-1 0 1 2 3 4 5 6 7$	
	8	The graph of $ 2r-3 < 11$ is	
	0.	$\frac{1}{2} = \frac{1}{2} = \frac{1}$	8.
		a. $(-7-6-5-4-3-2-10)$ b. $(-7-6-5-4-3-2-10)$	
		$\mathbf{c}_{-7-6-5-4-3-2-1\ 0\ 1\ 2\ 3\ 4\ 5\ 6\ 7} \mathbf{d}_{-7-6-5-4-3-2-1\ 0\ 1\ 2\ 3\ 4\ 5\ 6\ 7} \mathbf{d}_{-7-6-5-4-3-2-1\ 0\ 1\ 2\ 3\ 4\ 5\ 6\ 7}$	
	9	At 10.00 AM two airplanes leave an airport. If the northbound	
	<i>J</i> .	airplane flies at 280 mph and the southbound at 320 mph, they	9.
		will be 1,000 miles apart at a. 11:30 AM b. 11:40 AM c. 12:00 noon d. 1:20 PM	
	10	Mrs. Martin bought \$200 worth of travelars' checks in \$10 and \$20	
	10.	denominations. If she has 12 travelers' checks in all, she has	10.
		a \$10: 5 b. \$10: 6 c. \$10: 3 d. \$10: 4	
		ϕ_{20} , γ ϕ_{20} , ϕ ϕ_{20} , γ ϕ_{20} , δ	





y







The indicated product of $(a^5)^7$ is ____. 1. 1104 1. **a.** a^2 **b.** $7a^5$ **c.** a^{12} **d.** a^{35} 2. The indicated product of (ab - 9)(ab + 8) is ____. 2. **b.** $ab^2 - ab + 72$ **a.** 2*ab* - 72 c. $a^2b^2 - ab - 72$ **d.** $a^2b^2 - 17ab - 72$ 3. The indicated product of $(x + 2y)^2$ is ____. 3. **b.** $x^2 + 2xy + 4y^2$ **d.** $x^2 + 4xy + 2y^2$ **a.** $x^2 + 4xy + 4y^2$ c. $x^2 + 2xy + 2y^2$ The factors of $9x^2 - y^2$ are ____. 4. 4. **a.** $(3x - y)^2$ **b.** (3x - y)(3x + y)**d.** $3(x - y)^2$ c. $(3x + y)^2$ The sum of $(6x^2 + 2x - 9) + (3x^2 - 5x + 12)$ is ____. 5. 5. **b.** $9x^2 + 7x - 3$ **d.** $9x^2 - 3x - 3$ **a.** $9x^2 - 3x + 3$ **c.** $3x^2 - 3x + 3$ The difference of $2x^2 + 5x - 10$ is ____. 6. 6. $\frac{x^2 - 6x + 8}{b. x^2 + 11x - 18}$ **a.** $3x^2 - x - 2$ c. $x^2 - x - 2$ **d.** $-x^2 - 11x - 18$ 7. The quotient of $(4x^2 - 11x - 20) \div (x - 4)$ is ____. 7. **a.** 4*x* - 5 **b.** 2x + 5c. 4x + 5**d.** 2*x* - 4 8. **The quotient of** $(a^{2n} - a^n - 6) \div (a^n + 8)$ **is** ____. 8. **a.** $a^n - 9 + \frac{72}{a^n + 8}$ **b.** $a^n - 9 + \frac{66}{a^n + 8}$ **c.** $a^{2n} - 2 + \frac{10}{a^n + 8}$ **d.** $a^n + 7 + \frac{-62}{a^n + 8}$ 9. If *x* varies directly as *y* and $x = 7 \frac{1}{2}$ when y = 10, the value 9. of x when y = 4 is ____. **a.** $1\frac{7}{8}$ **b.** 3 **c.** $5\frac{1}{3}$ **d.** $18\frac{3}{4}$ The volume of a right circular cone varies jointly as the 10. 10. altitude and the square of the radius of the base. If the volume of the cone is 154 cu. in. when its altitude is 12 in. and the radius of the base is $3\frac{1}{2}$ in., when the volume of the cone is 77 cu. in. and the radius of the base is $2\frac{1}{2}$ in., the altitude is ____inches. **a.** $5\frac{4}{9}$ in. **b.** 6 in. **c.** $10\frac{2}{7}$ in. **d.** $13\frac{1}{2}$ in.

1. _____ 1. The value of $\frac{4}{2r^0}$ is ____. 1105 **b.** $\frac{2}{r}$ **c.** 4 **a.** 2 **d.** 4*x* The variable $(\frac{3a^2}{5})^{-3}$ expressed with positive exponents is ____. 2. 2. _____ **a.** $\frac{9a^6}{15}$ **b.** $\frac{5}{3a}$ **c.** $5(3a^2)^3$ **d.** $\frac{5^3}{2^3a^6}$ 3. Divide: $\frac{5}{2x+3y} \div \frac{10}{4x^2-9y^2} =$ ____. 3. _____ **a.** 4x + 6y **b.** $\frac{2x - 3y}{2}$ **c.** $\frac{2x + 3y}{2}$ **d.** $\frac{1}{\frac{2(2x - 3y)}{2}}$ 4. Simplify: $\frac{2y^2 - 7y - 15}{3y^2 - 8y - 3} \bullet \frac{9y^2 - 1}{4y^2 - 9} \div \frac{y^2 + 3y - 10}{2y^2 - 9y + 9} =$ _____. 4. _____ **a.** $\frac{(y-5)(3y-1)}{(y+5)(y-2)}$ **b.** $\frac{-(3y-1)(2y-3)}{y-2}$ **c.** $\frac{3y-1}{y-2}$ **d.** $\frac{9y^2-1}{(3y+1)(2y-3)}$ 5. $\frac{x+6}{x^2+8x+15} + \frac{3x}{x+5} - \frac{x-3}{x+3} =$ _____. 5. **a.** $\frac{2x+2}{x+5}$ **b.** $\frac{2x^2+9x-9}{(x+5)(x+3)}$ **c.** $\frac{2x^2 + 8x + 21}{(x+5)(x+3)}$ **d.** $\frac{2x^2 + 16x + 15}{(x+5)(x+3)}$ 6. $1 + 2x + \frac{1}{2x} =$ ____. 6. **a.** 4x + 1 **b.** $\frac{2x + 4x^2 + 1}{2x}$ **c.** $\frac{4x^2 + 3}{2x}$ **d.** $\frac{6x + 1}{2x}$ 7. The solution to $\frac{5}{2x+6} - 2 = \frac{1-8x}{4x}$ is ____. 7. _____ **a.** $x = -3 \frac{1}{2}$ **b.** x = -1 **c.** $x = \frac{1}{3}$ **d.** x = 2

8. The solution to $\frac{3x-1}{9x-5} = \frac{x+1}{3x+1}$ is ____.

a. x = 1 **b.** x = 2 **c.** x = 3 **d.** x = 4

 A dairyman has 300 pounds of milk testing 3% butterfat.
 The number of pounds of skimmed milk he must remove to have milk testing 3.6% butterfat is ____ pounds.

a. 46.5 **b.** 48 **c.** 50 **d.** 51.4

10. John can type $\frac{2}{3}$ of a manuscript in 8 hours. If Laura joins him, they can complete the typing in 4 hours. **The number of hours Laura would take to type the manuscript alone would be** ____ hours.

10.____

9.

8.

a. 3 **b.** 4 **c.** 5 **d.** 6

1106	1.	The number -8 a. rational	.64 is a(n) nu b. irrational	mber. c.	radical	d. imaginary	1.	
	2.	The number 0.1 a. rational	23456789 is a b. irrational	(n) nu c.	mber. radical	d. imaginary	2.	
	3.	Rationalize the	denominator and	d simplify	$\frac{3\sqrt{2} - 2\sqrt{3}}{3\sqrt{2} + 2\sqrt{3}}$	$\frac{1}{3}\frac{1}{3}$ =	3.	
		a. $\frac{4-\sqrt{6}}{2}$	b. 5 - $\sqrt{2}$	c. 5 - 2√	6	d. 1 - $2\sqrt{6}$		
	4.	The solution to a. $x = 7$	$\sqrt[3]{x-5} - 2 = 0$ is b. $x = 9$	c. $x = 11$		d. <i>x</i> = 13	4.	
	5.	The solution to	$10t^2 - 29t = -10$ l	oy factorin	ng is			
		a. $t = \frac{5}{2}, \frac{2}{5}$	b. $t = \frac{5}{2}, -2$	c. $t = -3$,	2	d. $t = \frac{1}{2}, 5$	5.	
	6.	The solution to	$c^2 + 11c = 12$ by	completir	ng the squ	uare is		
		a. $c = \frac{1}{2}, 12$	b. <i>c</i> = -1, 1	c. <i>c</i> = 1, -	-12	d. <i>c</i> = 2, 6	6.	
	7.	The quadratic f a. $x = \frac{b \pm \sqrt{b^2 + 4a}}{2a}$	ormula is	b. $x = \frac{-b}{-b}$	$\frac{\pm \sqrt{a^2 - 4ac}}{2b}$		7.	
		$c. x = \frac{a \pm \sqrt{a^2 - 4ab}}{2c}$	- b -	d. $x = \frac{-b}{-b}$	$\pm \sqrt{b^2 - 4ac}$			
	8.	Using the quad	ratic formula, the	e solution	to			
		(3 - y) (y + 4) = 3y - 5 is		b. $y = -1 \pm 3\sqrt{2}$				
		c. $y = \frac{-3 \pm \sqrt{77}}{2}$	1	d. $y = \frac{2 \pm \sqrt{21}}{4}$				
	9.	An imaginary n a. does not exis	umber t	b. equals	s - 1		9.	
		c. is the square any negative	root of number	d. has no real ap	practical	and s		
	10.	$i^{12} + 2 = $ a. $i + 2$	b. - <i>i</i> + 2	c. 1		d. 3	10.	



a. circle b. ellipse c. parabola d. hyperbola

7. _____

8. The solution set to the system $4x^2 + 9y^2 = 72$ is ____. 2x - y = 4

- a. { (-2, -8), $(\frac{1}{2}, -3)$ } b. { $(0, 2\sqrt{2}), (\frac{2}{3}, -2\frac{2}{3})$ } c. { $(1, -2), (\frac{3}{4}, -2\frac{1}{2})$ } d. { $(3, 2), (\frac{3}{5}, -2\frac{4}{5})$ }
- 9. Let y = safe load in pounds and x = depth in inches for a certain type of rectangular horizontal beam. A constant of proportionality exists such that $y = kx^2$ (y varies directly as x^2). For a beam with y = 1,000 pounds and x = 5 inches, the constant k and the equation of the parabola for the beam are _____. a. k = 0.000005 lbs. ______. $y = 0.000005x^2$ _______. b. k = 40 lbs. ______.
 - **c.** k = 5,000 lbs. k = xy **d.** k = 25,000 lbs. $k = x^2y$
- 10. The Jones family plans a 300-mile trip. Let y = time traveled (in hours) and x = average speed (in miles per hour). The equation for the rectangular hyperbola that expresses the relationship between time traveled (y) and average speed (x) is ____.
 - **a.** 300 = xy **b.** $y = \frac{x}{300}$ **c.** x = 300y **d.** $300 = x^2 + y^2$

9.

10.

8.



- 7. The number 0.283 expressed in scientific notation is ____.
 a. 2,830 x 10⁻⁴
 b. 283 x 10⁻³
 c. 28.3 x 10⁻²
 d. 2.83 x 10⁻¹
- 8. Using the common logarithm table, antilog 3.2625 = ____.
 a. 0.5132
 b. 1.83
 c. 1,830
 d. 1,860

9. The sum of
$$\begin{pmatrix} 2 & 1 & 0 \\ 4 & 0 & 1 \end{pmatrix} + \begin{pmatrix} 1 & 1 & 5 \\ 2 & 3 & 4 \end{pmatrix}$$
 is ____.
a. $\begin{pmatrix} 6 & 4 & 0 \\ 12 & 0 & 9 \end{pmatrix}$ b. $\begin{pmatrix} 3 & 2 & 5 \\ 6 & 3 & 5 \end{pmatrix}$ c. $\begin{pmatrix} 2 & 1 & 5 \\ 6 & 0 & 4 \end{pmatrix}$ d. $\begin{pmatrix} 2 & 1 & 0 \\ 8 & 0 & 4 \end{pmatrix}$

- 10. Mr. Jones buys two pens, one package of lined paper, and three boxes of staples. The respective prices are 60¢, 70¢, and 45¢ for each unit. On his way home, Mr. Jones remembers that he will have some extra needs, so he returns to the same store and buys three times the same order. The matrices and the amount of Mr. Jones bill are ____.
 - **a.** (8 4 12) $\begin{pmatrix} 0.60 \\ 0.70 \\ 0.45 \end{pmatrix}$

b. (6 3 9) (0.60 0.70 0.45) Mr. Jones spent \$9.75.

Mr. Jones spent \$13.

c.	(2	1	3)	(1.20)		d.	7	(0.60	0.70	0.45)
				0.70			4			
				1.35			11	/		
Mr. Jones spent \$7.15.						Mr.	Jones s	spent	\$13.	

		۲	OWWO	<u>9</u> ¥	GARITH	MS OF	NUMBE	Sa		
z	0	-	7	e	*	5	\$	~	•0	6
2:	0000	0043	0086	0128	0170	0212	0253	0294	0334	0374
:2	0792	0828	0864	6680	0934	6960	3	1038	1072	1106
22	1139	1173	1206	1239	1271	1303	1335	1367	6 61	1430
:	1041	7641	C7C1		tort	1101	5	C/01		7611
13	1761	1790	1818	1847	1875	6061	1691	1959	1987	2014
2:	2041	2068	2002	2122	2148	2175	1077	1222	5027	6177
2	2553	2577	2601	2625	2648	2672	2695	2718	2742	2765
•	2788	2810	2833	2856	2878	2900	2923	2945	2967	2989
20	3010	3032	3054	3075	3096	3118	3139	3160	3181	3201
2	3222	3243	3263	3284	3304	3324	3345	3365	3385	3404
23	3424	446	3464	3483	3502	3522	3541	3560	3579	3598
32	3802	3820	3838	3856	3874	3892	6066	3927	3945	3962
25	3979	3997	4014	4031	4048	4065	4082	4099	4116	4133
36	4150	4166	4183	4200	4216	4232	4249	4265	4281	4298
2	4314	4330	4346	4362	4378	4393	440	4425	440	4456
8 8	44/2 4624	4487 4639	4502 4654	4518 4669	4533 4683	4548 4698	4 4 1 1 3 4 1 3	4728	4742 4742	4004
8;	1114	4786	4800	4814	4829	4843	4857	4871	4886	4900
32	5051	5065	5079	5092	5105	5119	5132	5145	5159	5172
8	5185	5198	5211	5224	5237	5250	5263	5276	5289	5302
5	5315	5328	5340	5353	5366	5378	5391	5403	5416	5428
35	5441	5453	5465	5478	5490	5502	5514	5527	5539	5551
8	5563	5575	5587	5599	5611	5623	2633	264	5658	2020
	2800		C0/C	11/2	67/5	04/C	26/6	1010	5888	5800
3 6	5911	5922	5933	594	5955	5966	5977	5988	2999	6010
ŧ	6021	6031	6042	6053	6064	6075	6085	9609	6107	6117
49	6128	6138	6149	6160	6170	6180	1619	6201	6212	6222
	6335	6345 6345	6356 2556	6365 6365	6375	6385	5629		6415	6425
\$	6435	44	6454	245	6474	6484	6493	6503	6513	6522
45	6532	6542	6551	6361	6571	6580	6390	6399	6099	6618
\$!	6628	6637	6646	6656	6665	6675	6684	6693	6702	6712
;4	6812	6821	6830	6839	6848 6848	6857	8089	6875	1889	6893
4	6902	6911	6920	6928	6937	6946	6955	6964	6972	6981
2	0669	8669	7007	7016	7024	7033	7042	7050	7059	1067
52	9/0/	7168	5601	1012	0117	7202	7210		7226	7235
5	7243	7251	7259	7267	7275	7284	7292	7300	7308	7316
5	1324	7332	7340	7348	7356	7364	13/12	/380	/388	0667

10.

7.

8.

9.

1109	1.	An example of an arithmetic series is	1
		a. $1 + 2 + 3 + 4 + \ldots + 10$ b. $\frac{3}{2} + \frac{3}{4} + \frac{3}{8} + \frac{3}{16} + \frac{3}{32}$	
		c. $5 + 10 + 15 + 20 \dots 5n$ d. $2 + 4 + 8 + 10 + 14 + 16$	
	2	An average of a competitive contraction	2
	Ζ.	An example of a geometric series is	Ζ
		a. $\frac{1}{2} + 1 + 1 \frac{1}{2} + 2 + 2 \frac{1}{2}$ b. $5 + 10 + 20 + 25 + 30$	
		c. $2 + 4 + 6 + 8 + 10$ d. $\frac{2}{3} + \frac{2}{6} + \frac{2}{12} + \frac{2}{24} + \frac{2}{48}$	
	3.	5! =	
		a. 5 b. 20 c. 60 d. 120	3
	4.	$\frac{8! \cdot 4!}{7! \cdot 3!} = \underline{\qquad}.$	
		a. $1 \frac{11}{11}$ b. 14 c. 32 d. 96	4
		21	
	5.	A representative from each of 7 nations is to sit at a round table to discuss trade relations. The number of ways the representatives	5
		can be seated is	
	_	a. 7 b. $7^2 = 49$ c. $6! = 720$ d. $7! = 5,040$	
	6.	The number of permutations that exist of the letters W X Y and Z taking three at a time is	6
		a. 12 b. 4 c. 24 d. 48	
	7.	An agriculture researcher wants to test the effect of 9 soil additives	7
		number of different combinations she can test is	
		a. 36 b. 120 c. 126 d. 15,120	
	8.	The number of different committees of 3 people that can be made from a group of 4 is	8
		a. 4 b. 8 c. 12 d. 24	
	9.	A certain event has the probability of $\frac{3}{4}$. The probability that the	9.
		event will not occur is	
		a. 1 b. $\frac{3}{4}$ c. $\frac{1}{2}$ d. $\frac{1}{4}$	
			10
	10.	The probability that a randomly selected person was born in June	10
		is $\frac{1}{12}$. If five people are chosen at random and their birth months	
		are noted, the probability that at least one has a June birthday is $_$	•
		161.051 . 87.781 14.641 . 1	
		a. $\frac{1}{248,832}$ b. $\frac{1}{248,832}$ c. $\frac{1}{248,832}$ d. $\frac{1}{248,832}$	

1110	1.	The graph of the parabola $y = \frac{-x^2}{20}$ opens	1
		a. upward b. downward c. to the right d. to the left	
	2.	Evaluate $12x^2y^{-1}$ for $x = 3$ and $y = 4$. a. 23 b. 37 c. 27 d. 9	2
	3.	Subtract $2x^2 - 4x - 3$ from $x^2 - 5x - 8$.a. $-x^2 - x - 5$ b. $x^2 + 5x + 11$ c. $-x^2 - 9x - 11$ d. $-2x^2 - x - 5$	3
	4.	Factor $8x^2 + 72x + 112$ completely.a. $2(x + 8) \bullet 4(x + 14)$ b. $8(x + 2)(x + 14)$ c. $8(x + 9)(x + 14)$ d. $8(x + 7)(x + 2)$	4
	5.	Solve $\frac{y+4}{2y} + \frac{y-2}{3} = \frac{3y^2+10}{6y}$ for y.	5
	6	a. $y = 1, -2$ b. $y = 2, 1$ c. $y = 4, 2$ d. $y = -4, 2$	
	0.	a. 25 b. $-5i^2$ c. 17 d. 19	6
	7.	Add. $\begin{pmatrix} 2 & 8 \\ 7 & -4 \end{pmatrix} + \begin{pmatrix} 6 & -14 \\ 9 & 3 \end{pmatrix}$	7
		a. $\begin{pmatrix} 8 & -6 \\ 16 & -1 \end{pmatrix}$ b. $\begin{pmatrix} -4 & 6 \\ -2 & 1 \end{pmatrix}$ c. $\begin{pmatrix} 14 & -12 \\ 5 & 10 \end{pmatrix}$ d. $\begin{pmatrix} 11 & 11 \\ 13 & -18 \end{pmatrix}$	
	8.	Find the 37th term of the sequence 2, 5, 8, 11, 14,	8
	9.	What is the probability of drawing a yellow marble or a red marble from a bag containing 12 yellow marbles, 16 red marbles, and 15 green marbles?	9
		a. $\frac{12}{28}$ b. $\frac{16}{28}$ c. $\frac{28}{30}$ d. $\frac{28}{43}$	
	10.	The graph of the conic $4x^2 + 4(y^2 - 4) = 0$ is	10
		a. y y d d	y •
			x

1. The domain of the relation $\{(x, y) : y = \frac{2x-5}{13x}\}$ is ____. 1201 1. **a.** $\{x: x = \frac{-5}{11}\}$ **b.** $\{y: y \in R\}$ **c.** {*x*: $x \in R, x \neq 0$ } **d.** {x: x is a positive number} The range of the relation $\{(x, y) : y = |x|\}$ is ____. 2. **a.** {*x*: $x \in R$ } **b.** $\{y: y \ge 0\}$ 2. _____ **d.** {y: y is a positive number} **c.** {*y*: $y \in R$ } Given the function $G(x) = 2x^2 + 2x - 1$, G(3) =____. 3. **c.** 23 **a.** 1 and -2 **b.** 17 **d.** 41 3. Given the function $H(x) = x^2 - 3x + 5$, H(a - b) =____. 4. **a.** $x^2 - 3x + 5$ **b.** $a^2 - b^2 - 3a + 3b$ **c.** $a^2 - b^2 - 3a - 3b + 5$ **d.** $a^2 - 2ab + b^2 - 3a + 3b + 5$ 4. **Given** f(x) = x + 4 and g(x) = 3x - 1, $(f \cdot g)(x) =$ ____. 5. **a.** 4x + 3**b.** 2x - 3 **c.** $3x^2 + 12x + 3$ **d.** 3x + 11x - 45. _____ Given f(x) = x + 2 and $g(x) = \frac{1}{x-1}$, $\frac{[g(x)]^2}{2f(x)} =$ _____. 6. 6.

a.
$$\frac{2(x+2)}{(x-1)^2}$$

b. $\frac{1}{2(x-1)^2(x+2)}$
c. $\frac{2(x-1)^2}{x+2}$
d. $\frac{(x+2)^2(x-1)}{2}$

7. Given
$$f(x) = x^2 + 6$$
 and $g(x) = 2x - 1$, $f[g(x)] =$ ______.
a. $2x^2 + 11$ b. $2x^2 + 18$ c. $4x^2 - 4x$ d. $4x^2 - 4x + 7$ 7. ______.
8. The graph of the identity function, $I(x) = x$ is _____.
a. b. c. d. 8. ______.
a. b. c. d. 8. ______.
9. Given $J = 2x + 6$, $J^{-1} =$ ____.
a. -4 b. $-2x - 6$ c. $\frac{1}{2x + 6}$ d. $\frac{x - 6}{2}$ 9. _____.

10. Given
$$H = x^2 + 8$$
, $H^{-1} =$ ______
a. 9 **b.** $-x^2 - 8$ **c.** $\frac{1}{x^2 + 8}$ **d.** $\pm \sqrt{x - 8}$





a.

a.

b.





4. The graph of
$$D = \{ (x, y) : y \ge 2x^2 - 5x + 1 \}$$
 is _____



5. Using the factor theorem to determine whether (3x + 1) is a factor of $f(x) = 9x^3 + 6x^2 + 4x + 2$ is shown by ____.

a.
$$3x^{2} + x + 1 \quad R \; 1$$

$$3x \; + \; 1)9x^{3} + 6x^{2} + 4x + 2$$

$$9x^{3} + 3x^{2}$$

$$3x^{2} + 4x$$

$$3x^{2} + x$$

$$3x + 2$$

$$3x + 1$$

$$1$$

b. $(3x + 1)(3x^{2} + x + 1) + 1$

$$3x + 1) + 1$$

$$3x^{2} + x + 1$$

$$3x^{2} + x + 1$$

$$3x^{2} + 4x$$

$$3x + 2$$

$$3x + 1$$

$$1$$

c.
$$f(-\frac{1}{3}) = 9(-\frac{1}{3})^3 + 6(-\frac{1}{3})^2$$

+ $4(-\frac{1}{3}) + 2$
= $9(-\frac{1}{27}) + 6(\frac{1}{9}) - \frac{4}{3} + 2$
= $-\frac{1}{3} + \frac{2}{3} - \frac{4}{3} + 2$
= 1

1

Using synthetic division to find 6. g(3) if $g(x) = 2x^3 - 3x^2 - 5x - 12$ is shown by ____. $2x^2 + 3x + 4$ **a.** $g(3) = 2(3)^3 - 3(3)^2 - 5(3) - 12$ **b.** $= 2(27) - 3(9) - 15 - 12 \qquad x - 3 \quad \overline{)2x^3 - 3x^2 - 5x - 12}$ = 54 - 27 - 27 $2x^3 - 6x^2$ $3x^2 - 5x$ = 0 $3x^2 - 9x$ 4*x* - 12 4*x* - 12 0 **c.** <u>3</u> <u>2 - 3 - 5 - 12</u> **d.** $(x - 3)(2x^2 + 3x + 4)$ 0 + 6 + 9 + 122 + 3 + 4 + 0The graph of the greatest integer function F(x) = x - [x] is ____. 7. 7. d. a. b. c. Y ₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽ х х х х

5.

6.



1203		a. $(\theta, \frac{v}{r})$:	$\underline{ } \theta = \frac{v}{r}$	b. $(\theta, \frac{u}{r})$:	$\underline{\qquad} \theta = \frac{u}{r}$	
		$\mathbf{c.} \ (\theta, \frac{r}{v}): \ _$	$- \theta = \frac{r}{v}$	d. $(\theta, \frac{v}{u})$: _	$\underline{\qquad} \theta = \frac{v}{u}$	
	1.	Substituting	1a			
		selections, c	hoose the co	rrect definitio	on for	D c
		a. sin	b. co	S	c. tan	
	2.	Using the tr	igonometric	table (p. 84),	if $\tan \theta = 5.769, \ \theta =$.	2
		a. 9° 50′	b. 29 [°] 59′	c. $80^{\circ} 10'$	d. 81 [°] 10′	
	3.	Using the tr	igonometric	table, the val	ue o f sec $48^{\circ} 24'$ is .	3.
		a. 1.337	b. 1.502	c. 1.506	d. 1.507	
						4
	4.	The value o	f tan $330^{\circ} 20'$	is		··
		a. -0.5696	D. -0.5930	c. 0.5696	a. 1.756	
	5.	The value o	f csc 210 ⁰ 17'	is .		5.
		a. -1.983	b. -1.158	c. -0.5285	d. 0.8643	
	6.	The value o	$f (2 \cos 90^{\circ})$	$(\sin 270^{\circ}) +$	$(\tan 180^{\circ}) \bullet (\cot 90^{\circ}) \text{ is } \$	6.
		a. 0	D. 1	c. -2	a. undenned	
	7.	The value o	f cot 90° + (se	ec 180°) • (csc	(270°) - tan 0° is .	7
		a. 1	b. 0	c. -1	d. undefined	··
	_					0
	8.	The value o	f (csc 90° • co	$5s \ 180^{\circ})^{3}$ is	d_ undefined	ð
		d. -1	D. 0	C. 1	a. undermed	
	9.	The value o	9			
		_				
		a. $\sqrt{2}$	b. $\frac{V_2}{2}$	c. $\frac{1}{2}$	d. $\frac{\sqrt{3}}{2}$	
	10.	Express 36 ^o	in radians:	·		10
		5	π	π		
		a. $\frac{\sigma}{\pi}$	b. ${10}$	c. $\frac{1}{5}$	d. 5π	

- 1204 1. The value of $\sin^2 \frac{\pi}{3}$ is ____.
 - **a.** 0 **b.** $\frac{1}{4}$ **c.** $\frac{1}{2}$ **d.** $\frac{3}{4}$

2. The value of
$$\cos \frac{\pi}{6} + \sin \frac{5\pi}{6}$$
 is ____.
a. 0 b. 1 c. $\sqrt{3}$ d. $\frac{\sqrt{3}+1}{2}$

1. _____

2. _____

3. _____

3. The graph of
$$y = \cos x$$
, $\frac{-\pi}{2} \le x \le 2\pi$ is ____.





4. The graph of $y = \tan x, -2\pi \le x \le \frac{\pi}{2}$ is ____.



7. The period of $y = \sec \frac{x}{3}$ is ____.

a.
$$\frac{1}{6\pi}$$
 b. $\frac{\pi}{3}$ **c.** 3π **d.** 6π

The graph of $y = 3 \cos 3x$, $0 < x < 2\pi$ **is** ____. 8.



7.

- 9. The phase shift of $F(x) = \cot(2x 1)$ is ____.
 - **a.** $\frac{\pi}{2}$ units left **b.** 1 unit left
 - **c.** $\frac{1}{2}$ unit right **d.** π units right

10. The graph of
$$G(x) = \sec(x - \frac{\pi}{2})$$
 is ____.



9.____

10. _____

1205 1. The expression
$$1 + \tan \theta \cot \theta - \frac{\sin \theta \cot \theta}{2}$$
 simplifies to ______ 1. _____
a. 0 b. 1 c. $1\frac{1}{2}$ d. 2
2. The expression $\frac{\sin \theta}{\cos \theta} \cdot \csc \theta + \frac{1}{\sec \theta}$ equals ______ 2. _____
a. $\sec \theta + \cos \theta$ b. $\frac{\sin^2 \theta}{\cos \theta}$ c. $\sin \theta + \cos \theta$ d. $2 \cos \theta$
3. Given that α and β are first-quadrant angles, $\sin \alpha = \frac{1}{2}$, and $\cos \beta = \frac{2}{3}$, the value of $\sin(\alpha - \beta)$ is ______ a. $\frac{41}{12}$ b. $\frac{4 \cdot 3\sqrt{5}}{12}$
c. $\frac{3\sqrt{3} + 4\sqrt{5}}{12}$ d. $\frac{2 \cdot \sqrt{15}}{6}$
4. Given that θ and ϕ are first-quadrant angles, $\sin \theta = \frac{3}{5}$, and $\sin \phi = \frac{\sqrt{2}}{2}$, the value of $\tan(\theta + \phi)$ is _____ a. $\frac{4}{4 \cdot 3\sqrt{2}}$
5. Given that $\cos \alpha = \frac{\sqrt{2}}{2}$ and x is a fourth-quadrant angle, the value of $\cos 2x$ is _____ a. $\frac{1}{2}$ d. $\frac{2}{2}$
6. Given that $\cos \alpha = \frac{3}{5}$ and α is a first quadrant angle, the value of $\cos 2\alpha$ is _____ a. $\frac{1}{2}$ d. $\frac{1}{2}$
5. Given that $\cos \alpha = \frac{3}{5}$ and α is a first quadrant angle, the value of $\cos 2\alpha$ is _____ a. $\frac{1}{4}$ d. $\frac{2}{25}$ c. 1 d. $\frac{7}{25}$
7. Given that $\cos x = \frac{1}{2}$ and x is a fourth-quadrant angle, the value of $\cos 2\alpha$ is ______ a. $\frac{1}{4}$ d. $\frac{2}{25}$ d. $\frac{1}{2}$ d. $\frac{1}{2}$
7. Given that $\cos x = \frac{1}{2}$ and x is a fourth-quadrant angle, the value of $\cos 2\alpha$ is ______ a. $\frac{1}{4}$ d. $\frac{2}{25}$ d. $\frac{1}{2}$ d. $\frac{1}{2}$ d. $\frac{7}{2}$
10. _____

10. The solution to $3 \cot x + \sqrt{3} = 0$ with domain $0^{0} \le x \le 360^{0}$ is ______. a. $x = \{60^{0}, 120^{0}\}$ b. $x = \{120^{0}, 300^{0}\}$

c. $x = \{150^{\circ}, 210^{\circ}\}$ **d.** $x = \{150^{\circ}, 330^{\circ}\}$



9. The pilot wishes to fly on course 290° with an air speed of 300 knots when the wind blows from direction 224° at 18 knots. The wind correction angle is ____.
a. 3° 8′ b. 5° 42′ c. 11° 59′ d. 15° 14′

9.

10. Two submarines, one cruising at 25 knots and the other at 20 knots, left a naval base at the same moment. Three hours later they were 100 nautical miles apart. The measure of the angle between their courses was ____.

a. 26[°] **b.** 95[°] **c.** 154[°] **d.** 175[°]





5. The polar coordinates $(3, \frac{-3\pi}{4})$ expressed as

Cartesian coordinates are ____.

a.
$$\left(-\frac{3\sqrt{2}}{2}, -\frac{3\sqrt{2}}{2}\right)$$

b. $\left(-\frac{3\sqrt{2}}{2}, \frac{3\sqrt{2}}{2}\right)$
c. $\left(\frac{3\sqrt{2}}{2}, -\frac{3\sqrt{2}}{2}\right)$
d. $\left(\frac{3\sqrt{2}}{2}, \frac{3\sqrt{2}}{2}\right)$

5. _____



The graph of $r = 1 + \cos \theta$ is ____. 10.







7. The translation of $2x^2 + 3y^2 - 8x + 6y - 7 = 0$ to its new center is ____.

a. $\frac{(x')^2}{9} + \frac{(y')^2}{6} = 1$ **b.** $\frac{(x')^2}{7} + \frac{(y')^2}{8} = 1$ **c.** $2(x'-2)^2 + 3(y'+1)^2 = 6$ **d.** $(x')^2 + (y')^2 = 1$

80



- 9. The equation $7x^2 6\sqrt{3}xy + 13y^2 = 16$, when rotated is _____ 9. ____ a. $7(x')^2 + 13(y')^2 = \frac{8\sqrt{3}}{9}$ b. $(x')^2 + 5(y')^2 = 16$ c. $(x')^2 + 4(y')^2 = 4$ d. $3(x')^2 - 2(y')^2 = 12$
- **10.** The equation $x^2 + 4xy + y^2 = 16$, when transformed, is _____. 10. _____. **a.** $(x')^2 + 8(y')^2 = 1$ **b.** $(x')^2 - (y')^2 = 1$

c.
$$\frac{(x')^2}{6} + \frac{(y')^2}{2} = 1$$
 d. $\frac{(x')^2}{\frac{16}{3}} - \frac{(y')^2}{16} = 1$

8.

1209	1.	A letter of the alphabet is chosen at random. The probability that the letter chosen is a yowel is	1
		2 1 5 5 1 $-$	
		a. $\frac{1}{13}$ b. $\frac{1}{21}$ c. $\frac{1}{26}$ d. 5	
	2.	From an assortment containing seven blue light bulbs, four red	2.
		bulbs, and three white bulbs, a bulb is chosen at random. The	
		probability that it will not be red is	
	-	a. 0.29 b. 0.40 c. 0.50 d. 0.71	
	3.	An integer is chosen at random from the first 40 positive integers.	3
		a = 0.050 b 0.250 c 0.275 d 0.580	·
	4.	A certain class of 160 students has 50 honor students and 70	4
		athletes. Sixty students in the class are not honor students and	
		are not involved in sports. If a student is selected at random to	
		represent the class, the probability that he is an honor student or	
		an athlete is	
		a. $\frac{1}{8}$ b. $\frac{1}{4}$ c. $\frac{7}{16}$ d. $\frac{5}{8}$	
		8 4 10 8	
	5.	A job applicant estimates that his chance of passing a qualifying	5.
		examination is $\frac{2}{2}$ and his chance of being appointed if he does	
		$\frac{1}{3}$ and his chance of being appointed if he does	
		pass is $\frac{1}{4}$. The probability that he will receive the job is	
		a. 0.167 b. 0.343 c. 0.833 d. 0.917	
	6.	One bag contains three green marbles and five blue marbles, and	
		a second bag contains four green marbles and six blue marbles.	6.
		A person draws one marble from each bag. The probability that	
		both marbles are blue is	
	7.	The value of πP_0 is .	
		a 14 b 25 c 38 d 42	7
	8.	The number of ways 5 men and 5 women can be seated at a	··
		round table if the men and women alternate is	8.
		a. 240 b. 625 c. 2,500 d. 2,880	
	9.	The value of ${}_{10}C_{10}$ is	
		a. 1 b. 10 c. 100 d. 3,628,800	9
	10	A research scientist is testing whether drugs interact so that	
	10.	two drugs might be given simultaneously. If he is concerned	10.
		with ten drugs, the number of pairs he must consider is	
		a. 5 b. 20 c. 45 d. 90	

1210	1.	Given that $f(x) = 3x^3 + x - 1$, evaluate the function: $f(-2)$ a. 27 b27 c. 25 d21	1					
	2.	Evaluate the limits: $\lim_{x^3} \frac{1}{x^3}$	2					
		$\chi \rightarrow -2$						
		a. $-\frac{1}{16}$ b. $\frac{1}{8}$ c. $-\frac{1}{8}$ d. $-\frac{1}{2}$						
	3.	Find the slope of the function: $f(x) = 7 - 3x$ a3 b12 c. 6 d6	3					
	4.	Given $g(x) = 4x - 1$ and $h(x) = 2x^2$, find the function: $g[h(x)]$ a. $4x^2 - 1$ b. $7x^2$ c. $8x^2 - 2x$ d. $8x^2 - 1$	4					
	5.	Solve $3x^2 + x - 10 \le 0$. a. $-5 \le x \le \frac{2}{3}$ b. $-2 \le x \le \frac{5}{3}$ c. $2 \ge x \ge -\frac{5}{3}$ d. $2 \le x \le \frac{5}{3}$	5					
	6.	A circular gear turns 120° per hour. Through how many radians does it turn in a 24-hour day? a. 8 b. 16π c. $\frac{2}{3}\pi$ d. 12	6					
	7.	Solve the equation; domain $0^{0} \le \theta \le 360^{0}$. Answer to the nearest whole degree: $2 \sin \theta - \sqrt{3} = 0$. a. $\theta = 60^{0}$, 120^{0} b. $\theta = 40^{0}$, 80^{0} c. $\theta = 120^{0}$, 360^{0} d. $\theta = 90^{0}$	7					
	 8. A rock weighing 25 pounds rests on a hill that makes an angle of 30° with the horizontal. How much of the friction force is needed to prevent the rock from rolling down the hill? a. 10 lbs b. 12.5 lbs c. 15 lbs d. 18 lb 							
	9.	Express the Cartesian equation in polar equation form: 2x - 3y + 4 = 0 a. $r(2 \cos \theta - 3 \sin \theta) + 4 = 0$ b. $r(3 \cos \theta - 2 \sin \theta) + 4 = 0$ c. $r(3 \sin \theta - 2 \cos \theta) - 4 = 0$ b. $r(\cos \theta - \sin \theta) + 4 = 0$ c. $r(\cos \theta - \sin \theta) + 4 = 0$ c. $r(\cos \theta - 2 \sin \theta) + 4 = 0$	9					
	10.	In how many ways can 6 campers sit around a campfire? 1 a. 25 b. 600 c. 30 d. 120	0					

m∠ Degrees	∠θ Radians	sin θ	csc θ	tan θ	cot θ	sec θ	cos θ		
0° 00′	.0000	.0000	Undefined	.0000	Undefined	1.000	1.0000	1.5708	90° 00'
10′	.0029	.0029	343.8	.0029	343.8	1.000	1.0000	1.5679	50'
20′	.0058	.0058	171.9	.0058	171.9	1.000	1.0000	1.5650	40'
30′	.0087	.0087	114.6	.0087	114.6	1.000	1.0000	1.5621	30'
40′	.0116	.0116	85.95	.0116	85.94	1.000	.9999	1.5592	20'
50' 1° 00' 10' 20' 30' 40' 50'	.0145 .0175 .0204 .0233 .0262 .0291 .0320	.0145 .0175 .0204 .0233 .0262 .0291 .0320	68.76 57.30 49.11 42.98 38.20 34.38 31.26	.0145 .0175 .0204 .0233 .0262 .0291 .0320	68.75 57.29 49.10 42.96 38.19 34.37 31.24	1.000 1.000 1.000 1.000 1.000 1.000	.9999 .9998 .9998 .9997 .9997 .9996 .9995	1.5563 1.5533 1.5504 1.5475 1.5446 1.5417 1.5388	10' 89° 00' 50' 40' 30' 20'
2° 00′	.0349	.0349	28.65	.0349	28.64	1.001	.9994	1.5359	88° 00'
10′	.0378	.0378	26.45	.0378	26.43	1.001	.9993	1.5330	50'
20′	.0407	.0407	24.56	.0407	24.54	1.001	.9992	1.5301	40'
30′	.0436	.0436	22.93	.0437	22.90	1.001	.9990	1.5272	30'
40′	.0465	.0465	21.49	.0466	21.47	1.001	.9989	1.5243	20'
50′	.0495	.0494	20.23	.0495	20.21	1.001	.9988	1.5213	10'
3° 00′	.0524	.0523	19.11	.0524	19.08	1.001	.9986	1.5184	87° 00'
10′	.0553	.0552	18.10	.0553	18.07	1.002	.9985	1.5155	50'
20′	.0582	.0581	17.20	.0582	17.17	1.002	.9983	1.5126	40'
30′	.0611	.0610	16.38	.0612	16.35	1.002	.9981	1.5097	30'
40′	.0640	.0640	15.64	.0641	15.60	1.002	.9980	1.5068	20'
50′	.0669	.0669	14.96	.0670	14.92	1.002	.9978	1.5039	10'
4° 00′	.0698	.0698	14.34	.0699	14.30	1.002	.9976	1.5010	86° 00'
10′	.0727	.0727	13.76	.0729	13.73	1.003	.9974	1.4981	50'
20′	.0756	.0756	13.23	.0758	13.20	1.003	.9971	1.4952	40'
30′	.0785	.0785	12.75	.0787	12.71	1.003	.9969	1.4923	30'
40′	.0814	.0814	12.29	.0816	12.25	1.003	.9967	1.4893	20'
50′	.0844	.0843	11.87	.0846	11.83	1.004	.9964	1.4864	10'
5° 00′	.0873	.0872	11.47	.0875	11.43	1.004	.9962	1.4835	85° 00'
10′	.0902	.0901	11.10	.0904	11.06	1.004	.9959	1.4806	50'
20′	.0931	.0929	10.76	.0934	10.71	1.004	.9957	1.4777	40'
30′	.0960	.0958	10.43	.0963	10.39	1.005	.9954	1.4748	30'
40′	.0989	.0987	10.13	.0992	10.08	1.005	.9951	1.4719	20'
50′	.1018	.1016	9.839	.1022	9.788	1.005	.9948	1.4690	10'
6° 00′	.1047	.1045	9.567	.1051	9.514	1.006	.9945	1.4661	84° 00'
10′	.1076	.1074	9.309	.1080	9.255	1.006	.9942	1.4632	50'
20′	.1105	.1103	9.065	.1110	9.010	1.006	.9939	1.4603	40'
30′	.1134	.1132	8.834	.1139	8.777	1.006	.9936	1.4573	30'
40′	.1164	.1161	8.614	.1169	8.556	1.007	.9932	1.4544	20'
50′	.1193	.1190	8.405	.1198	8.345	1.007	.9929	1.4515	10'
7° 00′ 10′ 20′ 30′ 40′ 50′	.1222 .1251 .1280 .1309 .1338 .1367	.1219 .1248 .1276 .1305 .1334 .1363	8.206 8.016 7.834 7.661 7.496 7.337	.1228 .1257 .1287 .1317 .1346 .1376	8.144 7.953 7.770 7.596 7.429 7.269	1.008 1.008 1.009 1.009 1.009	.9925 .9922 .9918 .9914 .9911 .9907	1.4486 1.4457 1.4428 1.4399 1.4370 1.4341	83° 00'' 50' 40' 30' 20' 10'
8° 00'	.1396	.1392	7.185	.1405	7.115	1.010	.9903	1.4312	82° 00′
10'	.1425	.1421	7.040	.1435	6.968	1.010	.9899	1.4283	50′
20'	.1454	.1449	6.900	.1465	6.827	1.011	.9894	1.4254	40′
30'	.1484	.1478	6.765	.1495	6.691	1.011	.9890	1.4224	30′
40'	.1513	.1507	6.636	.1524	6.561	1.012	.9886	1.4195	20′
50'	.1542	.1536	6.512	.1554	6.435	1.012	.9881	1.4166	10′
9° 00′	.1571	.1564 cos θ	6.392 sec θ	.1584 cot θ	6.314 tan θ	1.012 csc θ	.9877 sin θ	1.4137 Radians	81° 00' Degrees
								m,	<i>∠</i> θ

m∠ Degrees	θ Radians	sin θ	csc θ	tan θ	$\cot \theta$	sec $ heta$	cos θ		
9° 00′	.1571	.1564	6.392	.1584	6.314	1.012	.9877	1.4137	81° 00'
10′	.1600	.1593	6.277	.1614	6.197	1.013	.9872	1.4108	50'
20′	.1629	.1622	6.166	.1644	6.084	1.013	.9868	1.4079	40'
30′	.1658	.1650	6.059	.1673	5.976	1.014	.9863	1.4050	30'
40′	.1687	.1679	5.955	.1703	5.871	1.014	.9858	1.4021	20'
50′	.1716	.1708	5.855	.1733	5.769	1.015	.9853	1.3992	10'
10° 00′	.1745	.1736	5.759	.1763	5.671	1.015	.9848	1.3963	80° 00'
10′	.1774	.1765	5.665	.1793	5.576	1.016	.9843	1.3934	50'
20′	.1804	.1794	5.575	.1823	5.485	1.016	.9838	1.3904	40'
30′	.1833	.1822	5.487	.1853	5.396	1.017	.9833	1.3875	30'
40′	.1862	.1851	5.403	.1883	5.309	1.018	.9827	1.3846	20'
50′	.1891	.1880	5.320	.1914	5.226	1.018	.9822	1.3817	10'
11° 00′	.1920	.1908	5.241	.1944	5.145	1.019	.9816	1.3788	79° 00'
10′	.1949	.1937	5.164	.1974	5.066	1.019	.9811	1.3759	50'
20′	.1978	.1965	5.089	.2004	4.989	1.020	.9805	1.3730	40'
30′	.2007	.1994	5.016	.2035	4.915	1.020	.9799	1.3701	30'
40′	.2036	.2022	4.945	.2065	4.843	1.021	.9793	1.3672	20'
50′	.2065	.2051	4.876	.2095	4.773	1.022	.9787	1.3643	10'
12° 00′	.2094	.2079	4.810	.2126	4.705	1.022	.9781	$\begin{array}{c} 1.3614 \\ 1.3584 \\ 1.3555 \\ 1.3526 \\ 1.3497 \\ 1.3468 \end{array}$	78° 00'
10′	.2123	.2108	4.745	.2156	4.638	1.023	.9775		50'
20′	.2153	.2136	4.682	.2186	4.574	1.024	.9769		40'
30′	.2182	.2164	4.620	.2217	4.511	1.024	.9763		30'
40′	.2211	.2193	4.560	.2247	4.449	1.025	.9757		20'
50′	.2240	.2221	4.502	.2247	4.390	1.026	.9750		10'
13° 00′	.2269	.2250	4.445	.2309	4.331	1.026	.9744	1.3439	77° 00'
10′	.2298	.2278	4.390	.2339	4.275	1.027	.9737	1.3410	50'
20′	.2327	.2306	4.336	.2370	4.219	1.028	.9730	1.3381	40'
30′	.2356	.2334	4.284	.2401	4.165	1.028	.9724	1.3352	30'
40′	.2385	.2363	4.232	.2432	4.113	1.029	.9717	1.3323	20'
50′	.2414	.2391	4.182	.2462	4.061	1.030	.9710	1.3294	10'
14° 00′	.2443	.2419	4.134	.2493	4.011	1.031	.9703	1.3265	76° 00'
10′	.2473	.2447	4.086	.2524	3.962	1.031	.9696	1.3235	50'
20′	.2502	.2476	4.039	.2555	3.914	1.032	.9689	1.3206	40'
30′	.2531	.2504	3.994	.2586	3.867	1.033	.9681	1.3177	30'
40′	.2560	.2532	3.950	.2617	3.821	1.034	.9674	1.3148	20'
50′	.2589	.2560	3.906	.2648	3.776	1.034	.9667	1.3119	10'
15° 00′	.2618	.2588	3.864	.2679	3.732	1.035	.9659	1.3090	75° 00'
10′	.2647	.2616	3.822	.2711	3.689	1.036	.9652	1.3061	50'
20′	.2676	.2644	3.782	.2742	3.647	1.037	.9644	1.3032	40'
30′	.2705	.2672	3.742	.2773	3.606	1.038	.9636	1.3003	30'
40′	.2734	.2700	3.703	.2805	3.566	1.039	.9628	1.2974	20'
50′	.2763	.2728	3.665	.2836	3.526	1.039	.9621	1.2945	10'
16° 00′	.2793	.2756	3.628	.2867	3.487	1.040	.9613	1.2915	74° 00'
10′	.2822	.2784	3.592	.2899	3.450	1.041	.9605	1.2886	50''
20′	.2851	.2812	3.556	.2931	3.412	1.042	.9596	1.2857	40'
30′	.2880	.2840	3.521	.2962	3.376	1.043	.9588	1.2828	30'
40′	.2909	.2868	3.487	.2994	3.340	1.044	.9580	1.2799	20'
50′	.2938	.2896	3.453	.3026	3.305	1.045	.9572	1.2770	10'
17° 00′	.2967	.2924	3.420	.3057	3.271	1.046	.9563	1.2741	73° 00'
10′	.2996	.2952	3.388	.3089	3.237	1.047	.9555	1.2712	50'
20′	.3025	.2979	3.357	.3121	3.204	1.048	.9546	1.2683	40'
30′	.3054	.3007	3.326	.3153	3.172	1.049	.9537	1.2654	30'
40′	.3083	.3035	3.295	.3185	3.140	1.049	.9528	1.2625	20'
50′	.3113	.3062	3.265	.3217	3.108	1.050	.9520	1.2595	10'
18° 00′	.3142	.3090 cos θ	3.236 sec θ	.3249 cot θ	3.078 tan θ	1.051 csc θ	.9511 sin θ	1.2566 Radians m.	72° 00′ Degreeι ∠θ

m ∠	άθ Develience	in A		4			0		
18° 00' 10' 20' 30'	.3142 .3171 .3200 .3229 .3258	.3090 .3118 .3145 .3173 .3201	3.236 3.207 3.179 3.152 3.124	.3249 .3281 .3314 .3346 .3378	3.078 3.047 3.018 2.989 2.960	1.051 1.052 1.053 1.054 1.056	.9511 .9502 .9492 .9483 9474	1.2566 1.2537 1.2508 1.2479 1.2450	72° 00' 50' 40' 30'
50' 19° 00' 10' 20' 30' 40' 50'	.3287 .3316 .3345 .3374 .3403 .3432 .3462	.3228 .3256 .3283 .3311 .3338 .3365 .3393	3.098 3.072 3.046 3.021 2.996 2.971 2.947	.3411 .3443 .3476 .3508 .3541 .3574 3607	2.932 2.904 2.877 2.850 2.824 2.798 2.773	1.057 1.058 1.059 1.060 1.061 1.062	.9465 .9455 .9446 .9436 .9426 .9417 9407	1.2421 1.2392 1.2363 1.2334 1.2305 1.2275	10' 71° 00' 50' 40' 30' 20'
20° 00' 10' 20' 30' 40' 50'	.3491 .3520 .3549 .3578 .3607 .3636	.3420 .3448 .3475 .3502 .3529 .3557	2.924 2.901 2.878 2.855 2.833 2.812	.3640 .3673 .3706 .3739 .3772 .3805	2.743 2.723 2.699 2.675 2.651 2.628	1.063 1.064 1.065 1.066 1.068 1.069 1.070	.9307 .9387 .9387 .9377 .9367 .9356 .9346	1.2240 1.2217 1.2188 1.2159 1.2130 1.2101 1.2072	70° 00′ 50′ 40′ 30′ 20′ 10′
21° 00'	.3665	.3584	2.790	.3839	2.605	1.071	.9336	1.2043	69° 00'
10'	.3694	.3611	2.769	.3872	2.583	1.072	.9325	1.2014	50'
20'	.3723	.3638	2.749	.3906	2.560	1.074	.9315	1.1985	40'
30'	.3752	.3665	2.729	.3939	2.539	1.075	.9304	1.1956	30'
40'	.3782	.3692	2.709	.3973	2.517	1.076	.9293	1.1926	20'
50'	.3811	.3719	2.689	.4006	2.496	1.077	.9283	1.1897	10'
22° 00′	.3840	.3746	2.669	.4040	2.475	1.079	.9272	1.1868	68° 00'
10′	.3869	.3773	2.650	.4074	2.455	1.080	.9261	1.1839	50'
20′	.3898	.3800	2.632	.4108	2.434	1.081	.9250	1.1810	40'
30′	.3927	.3827	2.613	.4142	2.414	1.082	.9239	1.1781	30'
40′	.3956	.3854	2.595	.4176	2.394	1.084	.9228	1.1752	20'
50′	.3985	.3881	2.577	.4210	2.375	1.085	.9216	1.1723	10'
23° 00′	.4014	.3907	2.559	.4245	2.356	1.086	.9205	1.1694	67° 00'
10′	.4043	.3934	2.542	.4279	2.337	1.088	.9194	1.1665	50'
20′	.4072	.3961	2.525	.4314	2.318	1.089	.9182	1.1636	40'
30′	.4102	.3987	2.508	.4348	2.300	1.090	.9171	1.1606	30'
40′	.4131	.4014	2.491	.4383	2.282	1.092	.9159	1.1577	20'
50′	.4160	.4041	2.475	.4417	2.264	1.093	.9147	1.1548	10'
24° 00′	.4189	.4067	2.459	.4452	2.246	1.095	.9135	1.1519	66° 00'
10′	.4218	.4094	2.443	.4487	2.229	1.096	.9124	1.1490	50'
20′	.4247	.4120	2.427	.4522	2.211	1.097	.9112	1.1461	40'
30′	.4276	.4147	2.411	.4557	2.194	1.099	.9100	1.1432	30'
40′	.4305	.4173	2.396	.4592	2.177	1.100	.9088	1.1403	20'
50′	.4334	.4200	2.381	.4628	2.161	1.102	.9075	1.1374	10'
25° 00′	.4363	.4226	2.366	.4663	2.145	1.103	.9063	1.1345	65° 00'
10′	.4392	.4253	2.352	.4699	2.128	1.105	.9051	1.1316	50'
20′	.4422	.4279	2.337	.4734	2.112	1.106	.9038	1.1286	40'
30′	.4451	.4305	2.323	.4770	2.097	1.108	.9026	1.1257	30'
40′	.4480	.4331	2.309	.4806	2.081	1.109	.9013	1.1228	20'
50′	.4509	.4358	2.295	.4841	2.066	1.111	.9001	1.1199	10'
26° 00'	.4538	.4384	2.281	.4877	2.050	1.113	.8988	1.1170	64° 00'
10'	.4567	.4410	2.268	.4913	2.035	1.114	.8975	1.1141	50'
20'	.4596	.4436	2.254	.4950	2.020	1.116	.8962	1.1112	40'
30'	.4625	.4462	2.241	.4986	2.006	1.117	.8949	1.1083	30'
40'	.4654	.4488	2.228	.5022	1.991	1.119	.8936	1.1054	20'
50'	.4683	.4514	2.215	.5059	1.977	1.121	.8923	1.1025	10'
27° 00′	.4712	.4540 cos θ	2.203 sec θ	.5095 cot θ	1.963 tan θ	1.122 csc θ	.8910 sin θ	1.0996 Radians m	63° 00' Degrees ΄.θ

m∠	θ								
Degrees	Radians	sin θ	csc Ø	tan θ	cot θ	sec 0	cos θ		
27° 00′ 10′ 20′ 30′ 40′ 50′	.4712 .4741 .4771 .4800 .4829 .4858 4887	.4540 .4566 .4592 .4617 .4643 .4669	2.203 2.190 2.178 2.166 2.154 2.142 2.130	.5095 .5132 .5169 .5206 .5243 .5280 .5317	1.963 1.949 1.935 1.921 1.907 1.894	1.122 1.124 1.126 1.127 1.129 1.131	.8910 .8897 .8884 .8870 .8857 .8843 .8843	1.0996 1.0966 1.0937 1.0908 1.0879 1.0850 1.0821	63° 00' 50' 40' 30' 20' 10'
20 10' 20' 30' 40' 50'	.4916 .4945 .4974 .5003 .5032	.4095 .4720 .4746 .4772 .4797 .4823	2.130 2.118 2.107 2.096 2.085 2.074	.5354 .5352 .5430 .5467 .5505	1.861 1.868 1.855 1.842 1.829 1.816	1.133 1.134 1.136 1.138 1.140 1.142	.882) .8816 .8802 .8788 .8774 .8760	1.0792 1.0763 1.0734 1.0705 1.0676	50' 50' 40' 30' 20' 10'
29° 00'	.5061	.4848	2.063	.5543	1.804	1.143	.8746	1.0647	61° 00'
10'	.5091	.4874	2.052	.5581	1.792	1.145	.8732	1.0617	50'
20'	.5120	.4899	2.041	.5619	1.780	1.147	.8718	1.0588	40'
30'	.5149	.4924	2.031	.5658	1.767	1.149	.8704	1.0559	30'
40'	.5178	.4950	2.020	.5696	1.756	1.151	.8689	1.0530	20'
50'	.5207	.4975	2.010	.5735	1.744	1.153	.8675	1.0501	10'
30° 00′	.5236	.5000	2.000	.5774	1.732	1.155	.8660	1.0472	60° 00'
10′	.5265	.5025	1.990	.5812	1.720	1.157	.8646	1.0443	50'
20′	.5294	.5050	1.980	.5851	1.709	1.159	.8631	1.0414	40'
30′	.5323	.5075	1.970	.5890	1.698	1.161	.8616	1.0385	30'
40′	.5352	.5100	1.961	.5930	1.686	1.163	.8601	1.0356	20'
50′	.5381	.5125	1.951	.5969	1.675	1.165	.8587	1.0327	10'
31° 00'	.5411	.5150	1.942	.6009	1.664	1.167	.8572	1.0297	59° 00′
10'	.5440	.5175	1.932	.6048	1.653	1.169	.8557	1.0268	50′
20'	.5469	.5200	1.923	.6088	1.643	1.171	.8542	1.0239	40′
30'	.5498	.5225	1.914	.6128	1.632	1.173	.8526	1.0210	30′
40'	.5527	.5250	1.905	.6168	1.621	1.175	.8511	1.0181	20′
50'	.5556	.5275	1.896	.6208	1.611	1.177	.8496	1.0152	10′
32° 00′	.5585	.5299	1.887	.6249	1.600	1.179	.8480	1.0123	58° 00'
10′	.5614	.5324	1.878	.6289	1.590	1.181	.8465	1.0094	50'
20′	.5643	.5348	1.870	.6330	1.580	1.184	.8450	1.0065	40'
30′	.5672	.5373	1.861	.6371	1.570	1.186	.8434	1.0036	30'
40′	.5701	.5398	1.853	.6412	1.560	1.188	.8418	1.0007	20'
50′	.5730	.5422	1.844	.6453	1.550	1.190	.8403	.9977	10'
33° 00'	.5760	.5446	1.836	.6494	1.540	1.192	.8387	.9948	57° 00'
10'	.5789	.5471	1.828	.6536	1.530	1.195	.8371	.9919	50'
20'	.5818	.5495	1.820	.6577	1.520	1.197	.8355	.9890	40'
30'	.5847	.5519	1.812	.6619	1.511	1.199	.8339	.9861	30'
40'	.5876	.5544	1.804	.6661	1.501	1.202	.8323	.9832	20'
50'	.5905	.5568	1.796	.6703	1.492	1.204	.8307	.9803	10'
34° 00′	.5934	.5592	1.788	.6745	1.483	1.206	.8290	.9774	56° 00'
10′	.5963	.5616	1.781	.6787	1.473	1.209	.8274	.9745	50'
20′	.5992	.5640	1.773	.6830	1.464	1.211	.8258	.9716	40'
30′	.6021	.5664	1.766	.6873	1.455	1.213	.8241	.9687	30'
40′	.6050	.5688	1.758	.6916	1.446	1.216	.8225	.9657	20'
50′	.6080	.5712	1.751	.6959	1.437	1.218	.8208	.9628	10'
35° 00'	.6109	.5736	1.743	.7002	1.428	1.221	.8192	.9599	55° 00'
10'	.6138	.5760	1.736	.7046	1.419	1.223	.8175	.9570	50'
20'	.6167	.5783	1.729	.7089	1.411	1.226	.8158	.9541	40'
30'	.6196	.5807	1.722	.7133	1.402	1.228	.8141	.9512	30'
40'	.6225	.5831	1.715	.7177	1.393	1.231	.8124	.9483	20'
50'	.6254	.5854	1.708	.7221	1.385	1.233	.8107	.9454	10'
30 00	.0283	.38/8 cos θ	1.701 sec θ	.1265 cot θ	1.376 tan θ	1.230 csc θ	.0090 sin θ	.9423 Radians m	Degrees ∠θ

m Z	θ								
Degrees	Radians	sin θ	csc $ heta$	tan θ	cot θ	sec 0	cos $ heta$		
36°00′	.6283	.5878	1.701	.7265	1.376	1.236	.8090	.9425	54° 00'
10′	.6312	.5901	1.695	.7310	1.368	1.239	.8073	.9396	50'
20′	.6341	.5925	1.688	.7355	1.360	1.241	.8056	.9367	40'
30′	.6370	.5948	1.681	.7400	1.351	1.244	.8039	.9338	30'
40′	.6400	.5972	1.675	.7445	1.343	1.247	.8021	.9308	20'
50′	.6429	.5972	1.668	.7490	1.335	1.249	.8004	.9279	10'
37° 00′	.6458	.6018	1.662	.7536	1.327	1.252	.7986	.9250	53° 00'
10′	.6487	.6041	1.655	.7581	1.319	1.255	.7969	.9221	50'
20′	.6516	.6065	1.649	.7627	1.311	1.258	.7951	.9192	40'
30′	.6545	.6088	1.643	.7673	1.303	1.260	.7934	.9163	30'
40′	.6574	.6111	1.636	.7720	1.295	1.263	.7916	.9134	20'
50′	.6603	.6134	1.630	.7766	1.288	1.266	.7898	.9105	10'
38° 00'	.6632	.6157	1.624	.7813	1.280	1.269	.7880	.9076	52° 00'
10'	.6661	.6180	1.618	.7860	1.272	1.272	.7862	.9047	50'
20'	.6690	.6202	1.612	.7907	1.265	1.275	.7844	.9018	40'
30'	.6720	.6225	1.606	.7954	1.257	1.278	.7826	.8988	30'
40'	.6749	.6248	1.601	.8002	1.250	1.281	.7808	.8959	20'
50'	.6778	.6271	1.595	.8050	1.242	1.284	.7790	.8930	10'
39° 00'	.6807	.6293	1.589	.8098	1.235	1.287	.7771	.8901	51° 00'
10'	.6836	.6316	1.583	.8146	1.228	1.290	.7753	.8872	50'
20'	.6865	.6338	1.578	.8195	1.220	1.293	.7735	.8843	40'
30'	.6894	.6361	1.572	.8243	1.213	1.296	.7716	.8814	30'
40'	.6923	.6383	1.567	.8292	1.206	1.299	.7698	.8785	20'
50'	.6952	.6406	1.561	.8342	1.199	1.302	.7679	.8756	10'
40° 00'.	.6981	.6428	1.556	.8391	1.192	1.305	.7660	.8727	50° 00'
10'	.7010	.6450	1.550	.8441	1.185	1.309	.7642	.8698	50'
20'	.7039	.6472	1.545	.8491	1.178	1.312	.7623	.8668	40'
30'	.7069	.6494	1.540	.8541	1.171	1.315	.7604	.8639	30'
40'	.7098	.6517	1.535	.8591	1.164	1.318	.7585	.8610	20'
50'	.7127	.6539	1.529	.8642	1.157	1.322	.7566	.8581	10'
41° 00′	.7156	.6561	1.524	.8693	1.150	1.325	.7547	.8552	49° 00'
10′	.7185	.6583	1.519	.8744	1.144	1.328	.7528	.8523	50'
20′	.7214	.6604	1.514	.8796	1.137	1.332	.7509	.8494	40'
30′	.7243	.6626	1.509	.8847	1.130	1.335	.7490	.8465	30'
40′	.7272	.6648	1.504	.8899	1.124	1.339	.7470	.8436	20'
50′	.7301	.6670	1.499	.8952	1.117	1.342	.7451	.8407	10'
42° 00'	.7330	.6691	1.494	.9004	1.111	1.346	.7431	.8378	48° 00'
10'	.7359	.6713	1.490	.9057	1.104	1.349	.7412	.8348	50'
20'	.7389	.6734	1.485	.9110	1.098	1.353	.7392	.8319	40'
30'	.7418	.6756	1.480	.9163	1.091	1.356	.7373	.8290	30'
40'	.7447	.6777	1.476	.9217	1.085	1.360	.7353	.8261	20'
50'	.7476	.6799	1.471	.9271	1.079	1.364	.7333	.8232	10'
43° 00'	.7505	.6820	1.466	.9325	1.072	1.367	.7314	.8203	47° 00'
10'	.7534	.6841	1.462	.9380	1.066	1.371	.7294	.8174	50'
20'	.7563	.6862	1.457	.9435	1.060	1.375	.7274	.8145	40'
30'	.7592	.6884	1.453	.9490	1.054	1.379	.7254	.8116	30'
40'	.7621	.6905	1.448	.9545	1.048	1.382	.7234	.8087	20'
50'	.7650	.6926	1.444	.9601	1.042	1.386	.7214	.8058	10'
44° 00'	.7679	.6947	1.440	.9657	1.036	1.390	.7193	.8029	46° 00'
10'	.7709	.6967	1.435	.9713	1.030	1.394	.7173	.7999	50'
20'	.7738	.6988	1.431	.9770	1.024	1.398	.7153	.7970	40'
30'	.7767	.7009	1.427	.9827	1.018	1.402	.7133	.7941	30'
40'	.7796	.7030	1.423	.9884	1.012	1.406	.7112	.7912	20'
50'	.7825	.7050	1.418	.9942	1.006	1.410	.7092	.7883	10'
45° 00′	.7854	.7071	1.414	1.000	1.000	1.414	.7071	.7854	45° 00′
		cos Ø	sec U	cof Ø	tan U	csc Ø	sin U	Kadians m	Legrees ∠θ

MATHEMATICS 700-1200 Introduction

PLACEMENT TEST for the LIFEPAC CURRICULUM Instructions

This test is designed to aid the teacher in proper placement of the student into the LIFEPAC curriculum. It has two sections: the Student Test and the Answer Key. The Answer Key is an insert in the Student Test and may be removed when testing begins.

This is not a timed test and the student should be given an opportunity to answer each question adequately. If the student becomes bogged down and the test seems too difficult, skip to the next section. If the test is still too difficult, this child's academic skill level has been reached and testing may stop. Each test level should take no longer than one hour. Students should not use calculators for any of these tests.

Testing should begin approximately two grade levels below the student's current or just completed grade level. For example, a student entering tenth grade [1000] should begin testing at the eighth grade [800] level. This allows for proper grade level placement as well as identification of any learning gaps that the student may have.

Once the test has been administered, it is ready to be scored. The teacher or parent does all of the scoring except for those who are using one of our placement services. Use the Answer Key to mark all incorrect answers on the Student Test. Next, record the total number of **correct** answers in the box beneath the LIFEPAC number in the left hand column. When all tests have been graded, transfer the number correct by LIFEPAC to the Student Placement Worksheet on the back page of the Answer Keys. Then add the total number of points per grade level.

Test	Level	Test	Level
701 - 710	7	1001 - 1010	10
801 - 810	8	1101 - 1110	11
901 - 910	9	1201 - 1210	12

There are ten possible points per section. Put all answers on the blanks to the right of the questions unless instructed to do otherwise.

701		703		705		707	8 1
1.	405,306	1.	line segment	1.	{5, 7, 9, 11}	1a	$\frac{0}{15}$ b. 73 $\frac{1}{2}$
2a.	>			2.	b	2a.	$1 \frac{1}{2}$ b. $\frac{2}{15}$
b.	=	2.	СС	3.	а	2.	$(1)\frac{7}{7}$
c.	<	3.	17			3a.	6 D. 8
		4	right	4.	114	4a.	1.785
3.	27	1.		5.	8	b	309.024
4.	44					5a.	35.5
5.	9	F	2	6.	7 x 10 ⁶	b	19.875
6	11	5.	C	7.	8	6a.	345.1
0.						b.	.00739
7.	9,566	6.	360°	8.	140	7	7
8.	1,918			9	24		
		7.	6 in.).	۷	8.	40
9.	700	8.	18.84 in.	10.	b	Q	25%
10	2 000	9.	288 sq. ft.).	2370
10.	2,000			706	5 7		
		10.	720°	1a.	1 b. 15 	10.	\$284.38
702				2a	$\frac{17}{45}$ h 1 $\frac{5}{6}$		
7 02 1a.	7	704		24.	45 0.1 6	708	
b.	67	1.	$\frac{30}{54}$	3.	26.623	1.	3 ft.
c.	469			4.	1.02	2.	20 in.
2a.	75	2.	$6\frac{3}{7}$	5.	$\frac{7}{100}$	3.	\$63
b.	15	2			F1		
c.	5	3.	>	6.	200	4	C
3.	27	4.	2.2	7	43		
4	64	5	03407		.10	5.	1:5
1.		5.	.034 //	0	,	6.	$\frac{4}{9} = \frac{12}{27}$
5.	5,400,000,000	6.	9:34	8.	a / c	7	h
		7.	$\frac{16}{25}$		d	7.	D
6.	5,372		<u> </u>	9.	$7\frac{1}{4}$ min.	8.	514 mph
7.	68,096	8.	.0013				
8.	27 R12	9.	.875			9.	28 in.
9.	607 R6	2.		10.	.3 hr. or		_0
10	24	10.	5,000 mg		18 min.		
10.						10.	27

709		801		803	3	805	4
1.	С	1	2,005,206	1.	4	1	5
		2	hundred		12		1
			thousand	2.	42	2	58 2
		3.	4		4	C	10 4294
		^{4.} –	490,000	3.	$1\frac{1}{7}$	3	10.4384
2.	9	5	24 fish			4	80.4
3.	8	0. –	21 11011	4.	18:72	- -	5
4.	8			5.	$\frac{1}{8}, \frac{1}{2}, \frac{7}{12}$	5	6
				,			23
5.	22				$\frac{5}{6}$, $1\frac{2}{3}$, $\frac{17}{8}$	6.	$1 \frac{23}{26}$
		6	75			-	#2 000
		0. 7 -		6.	.2	7	\$3,000
		· -	00 10.	7	71		
(8.	68 in.	7.	100	8	36
6.	(-2, 5)	-		8.	40 ft.	0	0.0
7.	(4, 3)			0.	10 10	9.	64
8.	(-6, -4)	9	37 in.	9.	b	-	
						10.	17.5%
				10.	10%		
9.	1	10	1 17(4)			806	22
10.	22	10	1,764 m ²	804	1	1	32
		802		1.	$1\frac{1}{6}$	2.	28
710	4	1.	1.614		11	3.	41
1.	8 x 10 ⁴		1/011	2.	$618 \frac{14}{15}$	-	
2		2.	С			4	4 in 14
۷.	>	-		2	8	_	
3	а			3.	35	5	3:10
0.		3	54		13	6	5.10
				4.	1 20	0	5.10
4.	16	4	a			7.	200
						_	
5.	56.52 in.	5.	17, 19, 23	5.	779.864		
	7 2	-	17, 17, 20				
6a.	$\frac{7}{9}$ b. 2 $\frac{2}{3}$	6.	$2^2, 3^2$	6.	3.968	8	5, 8, 11
	1	-	,				
7a.	$\frac{1}{6}$ b. 2	7	6	7.	3.1056	0	(5.2)
		_		0		9	(-3, -2)
8.	6	8	120	8.	10		
0	Dictorico	9.	$\frac{5}{6}$	9.	5		
9.	equals rate	-	V				
	times time	10.	$\frac{4}{5}$	10.	.6	10.	2:5
10.	44%	-					

807		809	
1.	b	1.	82
2.	-15, -8, -6 0, 2, 5, 10	2.	$\frac{2}{3}$
3.	32	3.	$\frac{N}{3} + 6$
4.	15	4.	3N – 5
5.	13		1
6. 7	0	5.	$2\frac{1}{2}$
8a.	(-1, 6)		
b.	(2, -3)	6.	1
9.	-19	7.	<i>xy</i> + 2 <i>x</i>
		8.	x = -3
10.	-3	9.	С

1.	30 sq. ft.	10. 8	40 min. or	
2.	120 m ²	_	14 hr.	
3.	25.748 cm	810 1	160%	
4.	19.625 sq. ft.	2a	16 b. 27	
5.	9 cu. ft.	3	206.0 cm ²	
6.	С	4	672 in. ³	
		5. <u>x</u>	$\frac{y-4x+3y}{-12}$	
7.	СС	6. <u>4N</u>	J + 2 = N - 1	
8.	10 yds. ³	7	-6, 9, 0	
9.	СС	83	3, 4, 5, 6	
10.	a	^{9.}	5 x 10 ⁶	
		10.	6	AK4

901		902		903		904	
1.	d.	1	a.	1.	<u> </u>	1	b.
				2	2	2	0
2	C	2	C	۷.	C.	Z	<u> </u>
۷.		<i></i>	с.	-			
3.	a.			3.	b.		
		3	b.	-		0	
4	h					3	a.
4.	D.						
				4.	a.		
5.	с.					4.	b.
		4	a.	_			
6	J						
0.	u.			5	d		
		5.	a.	0.			
				-		5.	d.
7.	а.				_		
				6.	b.		
		6	d			6	C
		0	u.	-		0	ι.
8.	d.						
				7.	с.		
						7	d.
0	C						
9.	C.					8.	b.
		7.	c.	8.	a.		~~~
				-			
10.	b.						
						0	2
		8.	b.			<i>.</i> _	a.
				-			
				9.	b.		
		2				10	с.
		9	d.	-			
				10.	d.		
		10.	d.				

905		906		906		907	
1.	b.	1	a.	8.	d.	1.	с.
2	1-						
Z	D.						
						2.	с.
3.	с.	2.	d.	9.	b.	-	
4	h					3	d
ч. –	υ.					J	<u>u.</u>
		3	b.	10.	a.		
5	с.						
						Λ	h
						4	<u> </u>
6.	b.						
_							
		4	d.				
						5	а.
7	а						
· -	<i>u</i> .						
8	d.	5	a.			6	d.
9.	d.						
_							
						7	а.
10	d	6	C				
	<u>u</u> .	0	<u>.</u>				
						8	b.
		7	C				
		/·	ι.				

907		908		908		909	
9	d	1	a.	8	a.	1	d
						2	С.
10		2	1				
10	a	2	d				
						3	b.
		3.	c.	9.	d.		
						4	С.
		4	с.	10	С.		
		5	a			5	С.
		,	1				
		6	b				
						Ĺ	h
		7	d.			0	υ.

909		910	910	1001	
7	с.	1. a.	9. <u>d</u> .	1	d.
				2.	d.
0					
8	a	2. b.		3.	a.
			-	<u> </u>	
			10	4	
			10. <u> </u>	4	а.
		3. b.			
9	а.		_	-	1
		4. d.		5	d.
			-		
10.	b.			6.	C.
		5. <u>a.</u>	-		
				7.	b.
		6		o	h
		0. <u> </u>	-	o	D.
				9	b.
		7	-		
				10.	c.
		8. a.			

1002		1002		1003		1003
1	b	9	a.	1	d.	
2	a			2	с.	
				3	С	10. <u>a.</u>
3	b. / a.			4	C	
				5	d.	
4	С.	10	b	6	a.	
				7	d	
5	b			8	b	
				9	d	
6	d					
7	С.					

8. <u>c.</u>

1004		1004	1004		1005	
1	с.	5. b.	7.	a.	1	b.
2	d				2	a
					3	<u>d</u> .
3	b				4	<u>b.</u>
4	C.	6. <u>d.</u>		<u> </u>		
			9.	b.	5	<u>b.</u>
			10.	d.	6.	d.

1005		1006		1006		1007	
7.	d.	1	d.	9.	d.	1	с.
		C	h				
		Z	D.				
0				10			
8	С.			10.	d.	_	
		3	a.				
0	2					2	d.
9	d						
		4	b.				
10.	d.						
		5.	C.				
						3	h
		6	J				
		0	u				
		7.	d.			4.	C.
		8	с.			5	d.

1007		1008	1008	1009
6	d.	1. a.	8. b.	1d.
			9. <u>a.</u>	
7	<u> </u>	2. <u>b.</u>	10a.	2. <u>a.</u>
8	a	3. <u>c.</u>		3. <u>c.</u>
0		4. <u>b.</u>		4. <u>b.</u>
9	a	5. <u>d.</u>		5. <u>a.</u>
		6. <u> </u>		6. <u>d.</u>
				7. <u> </u>
10.	d.	7. <u> </u>		8. c.

1009		1009		1010		1101	
9.	с.	10.	b.	1	d.	1	c.
						2.	a.
				2	b		
				3	a	2	
				4	a	3	<u> </u>
				5	d	4	d
				6	С.	5	a
						6.	b.
				7	b	7	a.
				8	a	8	b
				Q	h	9	b.
				7	υ		
				10	b	10	с.

1102		1103	1103	1104	
1.	d.	1. <u> </u>	8. <u>d</u> .	1	d.
2	d			2	с.
3	a	2. a.		3.	a.
4	С.				
_			9. <u>d</u> .	4	b.
5	С.			5	a.
		3. <u>b.</u>			
6	d			6	b
			10a	7	с.
		4. <u>c.</u>			
7	a			8	b.
		5. <u>d</u> .			
8.	b.			9.	b.
-		6. <u> </u>			
				10	d.
9	b	7. <u> </u>			

10. <u>d.</u>

1105		1105		1106		1107	
1.	а.	8	a.	1	а.	1	d
				2	1	2	c.
		9	C.	2	b		
2.	d.	<i></i>		-		3	a.
				3.	C.		
3.	b.	10	d.	-			
				4	d.		
				-			
4.	a.			5	a		
-							
				6.	с.		
				_		4	b.
				7	d		
5.	С.					5	a.
				8.	a.		
				_			
6	h					6	с.
0	<u> </u>						
				9	С.		
7.	C.						
-				10.	d.		
						7	b.

1107		1108		1108		1109	
8	d.	1	d.	7	d	1	a.
				8	C	2	d
				0	<u> </u>	<i>∠</i>	u.
0	1	2		9	b		
9	D.	Z	С.				
							_
						3	d.
				10	a.		
		3	а.			1	
						^{4.}	C.
10		4					
10	a	4	a			5.	C.
						6.	b.
						7.	C.
						_	
						8	a.
						0	L
						9	<u>u</u> .
						10	b.
		5.	b.				

6. <u>c.</u>

1110		1201	1202	1202
1	b.	1. <u>c.</u>	1. <u> </u>	5. <u>c.</u>
2	с.			
		2 b		
3.	a.	2		
		_		
		3. <u>c.</u>		
4	d.	4. <u>d.</u>	2. <u>b.</u>	
		5. d.		
5	a.			
		6. <u>b.</u>		
6	d		2 2	
			J. <u>d.</u>	6. c.
7	a	7 1		
		7. <u>u.</u>		
		8. <u>b.</u>		
8	b.			
0	d			
9	<u>u.</u>		4. d.	
		9. <u>d.</u>		
10.	b.			7. a.
		10. <u>d</u> .		

1202 8. <u>a.</u>	1203	1204 1. <u>d.</u>	1204 4. <u>b.</u>
	1a. <u>a.</u> b. <u>b.</u> c. <u>d.</u>	2. <u>d.</u>	
9. <u>b.</u>	2. <u>c.</u>		
	3. <u> </u>	3. <u>a.</u>	
	4. <u>a.</u>		
10. <u>d.</u>	5. <u>a.</u>		
	6. <u>a.</u>		
	7. <u> </u>		
	8. <u>a.</u>		
	9. <u>d.</u>		

10. <u>c.</u>

1204 5.	b.	1204 7.	d.	1204 9.	c.	1205 1.	c.
6	d.	8.	C.				
				10	a	2	a

3. <u>d.</u>

4. <u>c.</u>

5. <u>b.</u>

6. <u>d.</u>

7. _____a.

1205	1206		1206	1207	
	1	b.	9. <u>a.</u>	1.	a.
8. <u> </u>					
	2	a	10. <u> </u>	2.	a.
9. <u>d.</u>					
				3.	d.
	3	b		-	
10. b.					
	4	b.			

5. <u>b.</u>

6. <u>c.</u>

7. <u>b.</u>

8. <u>c.</u>
| 1207 | | 1207 | | 1207 | 1208 | |
|------|----|------|----|--------------|------|----|
| 4 | d. | 6 | b. | 10. <u> </u> | 1. | С. |
| | | | | | 2. | b. |
| | | | | | 3 | d. |
| | | 7 | b | | | |
| | | | | | | |
| | | 8 | d. | | 4 | d. |
| | | | | | | |
| | | | | | | |
| | | 9 | d. | | | |

5. <u>c.</u>

6. <u>a.</u>

7. <u>a.</u>

5. <u>a.</u>

1208		1209		1210	
8.	с.	1.	с.	1	b.
				2	C
		2.	d.		
				-	
		З	h		
		0.	υ.	-	
				3	a.
		4.	d.		
				4	4
				4	<u> </u>
				5	b.
		5	э		
		0.	a.		
9.	с.				
				6	b.
		6.	b.		
10	d.			-	
				7	
				/	d.
		7.	d.		
				-	
		8.	d.	. 8	b.
		9.	a.		
				9	a.
		10			
		10.	С.		
				10.	d

Student Name						Age
Date						Grade Last Completed
	700	800	900	1000	1100	1200
TOTAL SCORE						

GRADE LEVEL PLACEMENT: A student can be placed academically using the rule that he/she has successfully passed the test for any given level if he/she achieves a **Total Score of 70 points or more**.

This student places at grade level _____.

LEARNING GAPS: Learning gaps can be easily identified with the placement test. If a student receives **points of 6 or less** on any individual test, he/she has not shown mastery of the skills in that particular LIFEPAC. If desired, these LIFEPACs may be ordered and completed before the student begins his assigned grade level curriculum.

Learning gap LIFEPACs for this student are _____ ____ ____

It is not unusual for a student to place at more than one level in various subjects when beginning the LIFEPAC curriculum. For example, a student may be placed at 9th level in Bible, mathematics, science and social studies but 8th level in language arts. The majority of school time should be concentrated on the areas of lower achievement with the ultimate goal of equal skill mastery in all subjects at the same grade level.