Placement Test & Instructions

For

Shormann Algebra 1

with Integrated Geometry

Placement Guide

If your student has **NOT** successfully completed a Pre-Algebra course, **STOP HERE!** Do Not take this test! Instead, see: Can I skip Pre-Algebra? If you are not sure it is a pre-algebra course, Contact a Specialist

GRADE	RELUCTANT MATH STUDENT	GOOD MATH STUDENT
75+	PASSED	
70-74	**Reluctant Math Student: FAILED** Take the Pre-Algebra Placement Test	**GOOD MATH STUDENT: PASSED*** See explanation below.
69 or Less	FAILED	

* If this is a good math student, who successfully completed a pre-algebra course, even though they only scored a 70-74, they can use the reference lessons in Shormann Algebra 1, to fill these gaps. Therefore, they can take Shormann Algebra 1 with Integrated Geometry

Need Help? Contact a Specialist

Instructions

for the Algebra 1 Placement Test

1. If the last math course your student will complete before this course is a Saxon or Shormann Math course, STOP HERE and see: Placement
2. If your student has **NOT** successfully completed a Pre-Algebra course, **STOP!** Do Not take this test! See: Can I skip Pre-Algebra?
3. Students should be supervised by a parent or teacher.
4. The time limit is one hour. Set a timer for one hour and stop when it goes off. If they go past one hour, the score is not accurate.
5. No calculator or other help.
6. Students should show their work on a separate piece of paper.
7. Use the Solutions Key on page grade it. Each question is 5 points. Then, see the Placement Guide below.

Need Help? Contact A Placement Specialist

Shormann Algebra 1 Placement Test

Time Limit: 1 Hour. Show your work on a separate piece of paper. No calculator. Adult supervision required. Disregard the numbers in parentheses.

Use ratio boxes to solve problems 1–3.

1. (92) The regular price was \$45.00, but the skateboard was on sale for 20% off. What was the sale price?

2. (54) If 20 kilograms of seed cost \$31, how much would 30 kilograms cost at the same rate?

3. (92) A laser printer was on sale for 40% off the regular price. If the sale price was \$384, what was the regular price?

4. (111) Divide 9×10^7 by 3×10^4 and write the quotient in scientific notation.

5. (28, Inv. 4) The median of these numbers is how much less than the mean?

1.5, 0.4, 0.8, 0.85, 3.4

6. (94) What is the probability of having a coin turn up heads on four consecutive tosses?

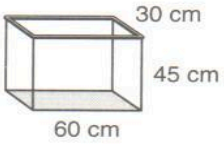
7. (110) Teesha left \$3500 in an account that paid 6% interest compounded annually. How much interest did Teesha earn in 2 years?

8. (77) What percent of \$25 is \$7.75?

9. (115) An aquarium with the dimensions shown is filled with water.

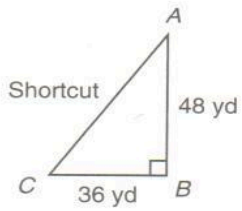
(a) How many liters of water are in the aquarium?

(b) How many kilograms of water are in the aquarium?

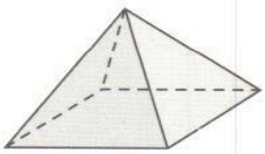


10. (88) Use two unit multipliers to convert 5 ft^2 to square inches.

11. (112) If Jo walks from point A to point B to point C, she walks 84 yards. How many yards would Jo save by taking the shortcut from A to C?



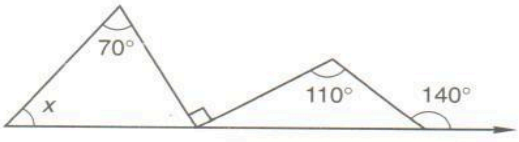
12. (113) Find the volume of this pyramid. The square base is 20 m by 20 m. The height is 15 m.



13. (Inv. 9, 107) Make a table that shows 3 pairs of numbers for the function $y = -x - 2$. Then graph the number pairs on a coordinate plane, and draw a line through the points to show other number pairs of the function. What is the slope of the graphed line?

14. (108) Use the formula $A = \frac{1}{2}bh$ to find h when $A = 30$ and $b = 6$.

15. (40) Find m$\angle x$.



16. (90, 93) Solve: $1\frac{2}{5}w - 18 = 31$

17. (93) Solve and graph on a number line: $2x + 4 \leq 6$

Simplify:

18. (52, 103) $(-2)^2 \cdot 3^{-2}$

19. (87, 103) $\dfrac{4x \cdot 4x}{4x + 4x}$

20. (85) $\dfrac{(-4) + (-7) + (3)(-3)}{(-6) - (-2)}$

Solutions for Algebra 1 Placement Test

Use the solutions below to grade your student's handwritten work. To determine placement, see the Placement Guide on page 4.

1.

	%	$
Original	100	45
Discount	20	d
New	80	n

$$\frac{100}{80} = \frac{45}{n}$$
$$100n = 3600$$
$$n = \mathbf{\$36.00}$$

2.

	Case 1	Case 2
Amount	20 kg	30 kg
Cost	$31	d

$$\frac{20}{31} = \frac{30}{d}$$
$$20d = 930$$
$$d = \mathbf{\$46.50}$$

3.

	%	$
Original	100	r
Discount	40	d
New	60	384

$$\frac{100}{60} = \frac{r}{384}$$
$$60r = 38{,}400$$
$$r = \mathbf{\$640}$$

4. $\dfrac{9 \times 10^7}{3 \times 10^4} = \mathbf{3 \times 10^3}$

5. Mean:

$$\frac{1.5 + 0.4 + 0.8 + 0.85 + 3.4}{5} = 1.39$$

Median: 0.85

Mean − median = 1.39 − 0.85 = **0.54**

6. $P(H, H, H, H) = \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} = \mathbf{\frac{1}{16}}$

7.

$$\begin{array}{r} \$3500 \\ \times \quad 1.06 \\ \hline \$3710 \\ \times \quad 1.06 \\ \hline \$3932.60 \end{array}$$

1st year total

2nd year total

Interest earned: **$432.60**

8. $W_P \times 25 = 7.75$

$$\frac{W_P \times 25}{25} = \frac{7.75}{25}$$

$$W_P = 0.31$$

$$W_P = \mathbf{31\%}$$

9. (a) Volume $= (60\text{ cm})(30\text{ cm})(45\text{ cm})$

$$= 81{,}000\text{ cm}^3$$

$$= 81{,}000\text{ cm}^3 \cdot \frac{1\text{ L}}{1000\text{ cm}^3}$$

$$= \mathbf{81\text{ L}}$$

(b) $81\text{ L} \cdot \frac{1\text{ kg}}{1\text{ L}} = \mathbf{81\text{ kg}}$

10. $5\text{ ft}^2 \cdot \frac{12\text{ in.}}{1\text{ ft}} \cdot \frac{12\text{ in.}}{1\text{ ft}} = \mathbf{720\text{ in.}^2}$

11. $a = 36$ yd, $b = 48$ yd, $c =$ length of shortcut

$$a^2 + b^2 = c^2$$

$$(36\text{ yd})^2 + (48\text{ yd})^2 = c^2$$

$$1296\text{ yd}^2 + 2304\text{ yd}^2 = c^2$$

$$3600\text{ yd}^2 = c^2$$

$$60\text{ yd} = c$$

Yards saved $= 84\text{ yd} - 60\text{ yd} = \mathbf{24\text{ yd}}$

12. Volume of pyramid

$$= \frac{1}{3} \cdot \text{area of base} \cdot \text{height}$$

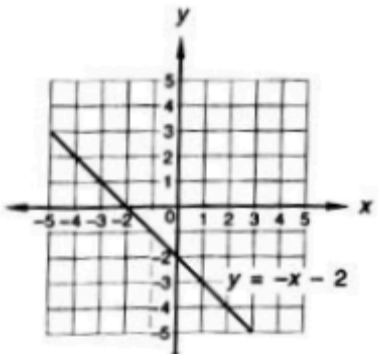
$$= \frac{1}{3} \cdot (20\text{ m})(20\text{ m}) \cdot 15\text{ m}$$

$$= \mathbf{2000\text{ m}^3}$$

13. $y = -x - 2$

x	y
0	−2
1	−3
2	−4

Check student work. Number pairs will vary.



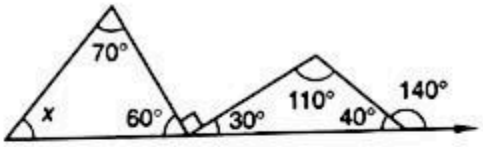
14. $A = \frac{1}{2}bh$

$30 = \frac{1}{2}(6)h$

$30 = 3h$

$\mathbf{10} = h$

15.



$m\angle x + 60° + 70° = 180°$

$m\angle x + 130° = 180°$

$m\angle x + 130° - 130° = 180° - 130°$

$m\angle x = \mathbf{50°}$

16. $1\frac{2}{5}w - 18 = 31$

$1\frac{2}{5}w - 18 + 18 = 31 + 18$

$1\frac{2}{5}w = 49$

$\frac{5}{7} \cdot \frac{7}{5}w = \frac{5}{7} \cdot 49$

$\mathbf{w = 35}$

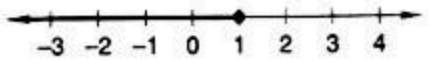
17. $2x + 4 \leq 6$

$2x + 4 - 4 \leq 6 - 4$

$2x \leq 2$

$\frac{2x}{2} \leq \frac{2}{2}$

$\mathbf{x \leq 1}$



18. $(-2)^2 \cdot 3^{-2} = 4 \cdot \frac{1}{3^2}$

$= 4 \cdot \frac{1}{9}$

$= \mathbf{\frac{4}{9}}$

19. $\frac{4x \cdot 4x}{4x + 4x} = \frac{16x^2}{8x} = \mathbf{2x}$

20. $\frac{(-4) + (-7) + (3)(-3)}{(-6) - (-2)}$

$= \frac{-4 - 7 - 9}{-4} = \frac{-20}{-4} = \mathbf{5}$