Fifth Grade Answer Key Unit 9: Data & Financial Literacy

See PDF bookmarks for navigation

Lesson 1

A fifth-grade class is conducting a survey. Which questions would have answers that are numbers?

- **1.** What is your favorite flavor of ice cream?
- **2.** How many pets do you have?
- 3. In what month were you born?
- 4. What is your favorite sport?
- 5. What color are your eyes?
- **6.** Which hand or hands do you use to write?

List 3 possible answers for each question shown.

Answers will vary.

Lesson 2

Order the numbers from least to greatest.

14, 18, 8, 29, 70, 16, 25, 80, 34, 28, 14, 34

8, 14, 14, 16, 18, 25, 28, 29, 34, 34, 70

Lesson 3

Mrs. Harris used tally marks to record data to show the numbers of each color of crayon in her crayon bin. Complete the table to show the numbers.

Color	Tally	Total
Red	HHT	8
Orange	HHT HHT	10
Yellow	HHT HHT I	11
Green		4
Blue	<i>H</i> ##	5
Purple	HHT	9

Lesson 4

Create a picture graph to show the data from the table on Day 3.

Picture graphs will vary.

Lesson 5

Look at the data set below.

5, 2, 4, 3, 4, 5, 2, 3, 4, 20

Describe what you notice about the values in the data set.

Sample answer: Most of the numbers are 5 or less.



Lesson 7

Underline the tens place and circle the ones place in each number below.

<u>45, 32, 18, 22, 24, 19, 46, 67</u>

Lesson 8

Order the numbers in the data set below from least to greatest.

84, 88, 65, 59, 70, 93, 83, 83, 73, 75, 52, 82

52, 59. 65, 70, 73, 75, 82, 83, 83, 84, 88, 93

Lesson 9

Plot the points, (3, 4), (6, 1), (2, 3), (4, 9), (6, 0), and (4, 4) on a coordinate grid.

Lesson 10

Given the ordered pair, (7, 6), what is the *x*-coordinate? What is the *y*-coordinate?

x-coordinate: 7 y-coordinate: 6

Lesson 11

What does the horizontal axis on a coordinate grid represent? What does the vertical axis on a coordinate grid represent?

Sample answer: The horizontal axis represents the x-axis. The vertical axis represents the y-axis.

Lesson 13

Amy buys a sweater that costs \$42. She pays with a \$100 bill. How much change does she receive?

\$58

Lesson 14

Subtract.

\$3,200 - \$680 = **\$2,520**

Lesson 12

Multiply.

0.10 × 200 = **20**

Lesson 15

Darrin's light bill is \$97. His water bill is \$85. His gas bill is \$92. What is the total cost of his three bills?

\$274

Lesson 16

Harold's monthly income is \$2,570. His expenses this month total \$1,830. How much of his paycheck is remaining?

\$740

Lesson 17

Discuss the meaning of the word *balanced* as it is used in mathematics.

Sample answer: Balanced means that two things are equal.

Lesson 18

Write an equation that is balanced.

Answers will vary.

Lesson 19

Michael earns \$2,200 per month. His rent is one-fourth of his income. How much is his rent?

\$550

Lesson 20

Emma pays 1% in property taxes per year. By what decimal must she multiply her home value to determine the cost of her property taxes?

0.01

Pre-Assessment

For 1–2, identify whether categorical data or numerical data is shown for each set of data.

- elephant, elephant, lion, monkey, lion, 2. lion, monkey, monkey, monkey categorical
- **3.** Mr. Smith surveys the students in his class regarding their candy preferences. The results are shown below:

fruit chews, licorice, chocolate, licorice, mints, chocolate, fruit chews, mints, chocolate, licorice, fruit chews, licorice, fruit chews

Create a frequency table to represent the data.

fruit chews	
licorice	
chocolate	
mints	

5. Represent the data set below using a stem and leaf plot.

95, 60, 83, 96, 77, 90, 68, 69, 60, 64, 98, 82

STEM	LEAF
6	0, 0, 4, 8, 9
7	7
8	2, 3
9	0, 5, 6, 8

- 18, 15, 15, 18, 17, 14, 12, 11, 10, 9
 numerical
- **4.** Ms. Jones surveys her students regarding their flower preferences. The results are shown below:

lily, rose, carnation, carnation, daisy, lily, lily, rose, rose, other, rose, carnation, daisy, daisy, lily, rose, rose, rose, lily, daisy

Create a bar graph to represent the data.



6. Represent the data set below, using a line plot.





9

7. The reading test grades of a random sample of students are represented by the stem and leaf plot below. What is the difference between the highest test grade and the lowest test grade?

LEAF
3
16
013
39
1278

45 points

9. A clothing store has a gross profit of \$432,000 and operating expenses of \$321,750. What is the net profit?

\$110,250

8. A hat costs \$15. The sales tax is 7%. What is the cost of the hat after the tax is applied?

\$16.05

10. What is the relationship between income and expenses in a balanced budget?

Sample answer: The income and expenses are equal, or balanced.

Data Quiz

1. Mr. Adams surveys the students in his class regarding their cheese preferences. The results are shown below:

> Swiss, provolone, cheddar, Swiss, Swiss, provolone, provolone, Swiss, Swiss, cheddar, cheddar, Swiss, provolone, provolone, cheddar, cheddar, Swiss, Swiss, cheddar, Swiss

Create a frequency table to represent the data.

Swiss	
provolone	##
cheddar	HH

2. Mrs. Wilkins surveys the students in her class regarding their season preferences. The results are shown below:

> autumn, spring, winter, winter, summer, summer, winter, autumn, autumn, summer, spring, spring, winter, summer, summer, spring, winter, winter, autumn, autumn

Create a bar graph to represent the data.



3. Represent the data set below using a stem and leaf plot.

88, 98, 98, 73, 97, 74, 60, 88, 67, 83, 92, 93

STEM	LEAF
6	0, 7
7	3, 4
8	3, 8, 8
9	2, 3, 7, 8, 8

4. The data set below represents the weight, in pounds, of the polished rocks in Katarina's collection. Represent the data set using a line plot.

 $\frac{1}{4}, \frac{1}{2}, \frac{1}{4}, \frac{1}{4}, \frac{1}{2}, \frac{3}{4}, 1\frac{1}{4}, 1\frac{1}{2}, \frac{3}{4}, \frac{1}{4}, 1\frac{1}{2}$



5. Use your line plot from question 4 to answer this question. What is the difference in weight between the heaviest rock and the lightest rock in Katarina's collection?



6. Test grades of a random sample of students are represented by the stem and leaf plot below.

STEM	LEAF
5	0678
6	1 5
7	59
8	379
9	7

What is the difference between the highest test grade and the lowest test grade?

47 points

7. Use the data in the table below to create a scatterplot.

Х	У
1	45
2	55
3	65
4	85
5	85
6	90
7	95
8	100

Answers will vary.



8. The students in a class were surveyed regarding sports preferences. The results are shown in the table below.

Favorite Sport	Frequency
Baseball	3
Football	2
Soccer	9
Basketball	6

How many more students prefer soccer than basketball?

3 students

9. The number of student visits to an amusement park is represented by the line plot below.

	Amuser	ment Pa	rk Visit	S
			Х	
		Х	Х	
Х		Х	Х	X
Х	Х	Х	Х	Х
0	1	2	3	4
	Num	nber of `	Visits	

How many more students visited an amusement park 3 times than 4 times?

2 students

10. The scatterplot below represents the relationship between math quiz grades and history quiz grades for a random sample of middle school students.



Describe the relationship between the variables.

Sample answer: Students scored about the same on both history and math.

Suppose a student scores 75 on the math quiz. What is a reasonable prediction for the score the student will receive on the history quiz?

Answers will vary.

Financial Literacy Quiz

1. A candle costs \$8. The sales tax is 7%. What is the amount of the sales tax?

\$0.56

2. A pair of shoes costs \$50. The sales tax is 8%. What is the total cost of the pair of shoes after the tax is applied?

\$54

3. Harry's business earns \$3,200 per month. His total operating expenses for each month are \$650. What is his net profit?

\$2,550

5. Define gross income and net income.

Sample answer: Gross income is the total amount a person makes. Net income is the amount leftover after all expenses have been paid. **4.** Marcus plans to buy a laptop computer. State an appropriate payment method. Explain.

Sample answer: Marcus should save until he can afford to pay for the entire laptop computer.

6. Describe appropriate steps to take to create a balanced budget.

Sample answer: Create a list that includes your income and all expenses.

7. How do you know if a budget is balanced? Explain.

Sample answer: If your income is equal to your expenses.

8. A clothing store has a gross profit of \$451,000 and operating expenses of \$389,550. What is the net profit?

\$61,450

Assessment

1. Mr. Thompson surveys the students in his class regarding their food preferences. The results are shown below:

> pizza, hamburger, pasta, pasta, pizza, salad, salad, hamburger, pizza, salad, salad, hamburger, pasta, pasta, salad, pizza, salad, hamburger, hamburger, pizza

> Create a frequency table to represent the data.

Swiss	##
provolone	₩
cheddar	
cheddar	HH

3. Represent the data set below using a stem and leaf plot.

56, 69, 93, 51, 86, 55, 63, 74, 65, 91, 55, 92

STEM	LEAF
5	1, 5, 5, 6
6	3, 5, 9
7	4
8	6
9	1, 2, 3

2. Mrs. Johnson surveys the students in her class regarding their color preferences. The results are shown below:

> blue, green, blue, yellow, red, red, yellow, blue, green, blue, green, blue, red, red, yellow, green, blue, blue, blue, red

Create a bar graph to represent the data.



4. Represent the data set below using a line plot.



5. Science test grades of a random sample of students are represented by the stem and leaf plot below.

STEM	LEAF
5	37
6	69
7	03467
8	1
9	5 5

What is the difference between the highest test grade and the lowest test grade?

42 points

6. Use the data in the table below to create a scatterplot.

х	y
1	15
2	20
3	25
4	30
5	35
6	45
7	50
8	60

Answers will vary.



7. The students in a class were surveyed regarding dessert preferences. The results are shown in the table below.

Favorite Dessert	Frequency
Ice Cream	7
Cake	4
Chocolate Chip Cookie	9
Brownie	5

Which dessert was preferred by most students?

Chocolate Chip Cookie

8. The number of points scored while playing a game is represented by the line plot below.

(Game F	oints	Score	d
			Х	
Х			Х	
Х		Х	Х	Х
Х	Х	Х	Х	Х
16	17	18	19	20
	Numb	er of I	Points	

Which number of points was scored the least?

17 points

9. The heights, in feet, of a random sample of students are shown below.

 $4\frac{1}{2}$, 5, 4, $5\frac{1}{2}$, 5, $4\frac{1}{2}$, $4\frac{1}{2}$, 5, 5, $5\frac{1}{2}$, 4, $4\frac{1}{2}$, 5, 5, $5\frac{1}{2}$

Create a line plot to represent the heights.



- **11.** A wallet costs \$10. The sales tax is 8%. What is the cost of the wallet after the tax is applied?
 - \$10.80

13. Josiah plans to buy a house. State an appropriate payment method. Justify your thinking.

Sample answer: Josiah should save 20% of the cost of the house as a down payment. He should make sure his net income can support a mortgage.

- 15. Hannah pays 20% income tax on her earnings. She made \$45,000 this year. How much income tax does she owe?
 - \$9,000

10. A pair of pants costs \$20. The sales tax is 8%. How much is the sales tax?

\$21.60

12. Robert's net profit is \$3,380. His income was \$3,750. How much were his operating expenses?

\$370

14. Create a possible budget for a local bakery.

Answers will vary.

16. Kim wants to buy a car with cash. State whether or not you think her payment method is appropriate. Explain.

Sample answer: If Kate has enough money in her checking account to pay cash for a car, I think that is a good idea because then she will not need a loan. The students in a class were surveyed about their pet preferences. The results are shown in the table below.

Favorite Pet	Frequency
Dog	4
Cat	6
Hamster	3
Bird	5

- 1. Which pet is preferred by the most students? Cat
- 2. Which pet is preferred by the fewest number of students? Hamster
- 3. How many more students prefer cats to dogs? **2 students**

Grade 5 • Unit 9 • Lesson 4 © Reagan Tunstall



The students in a class were surveyed about their food preferences. The results are shown in the table below.

Favorite Food	Frequency
Pizza	8
Sandwich	6
Salad	3
Pasta	5

- 1. Which food is preferred by the most students? Pizza
- 2. Which food is preferred by the fewest number of students? Salad
- 3. How many more students prefer sandwiches to pasta? 1 student

The students in a class were surveyed about their favorite school subject. The results are shown in the table below.

Favorite Subject	Frequency
Math	6
English	7
Art	9
Science	3

- 1. Which subject is preferred by the most students? Art
- 2. Which subject is preferred by the fewest number of students? Science
- 3. How many more students prefer art to math? **3 students**

The students in a class were surveyed about their favorite colors. The results are shown in the bar graph below. **Favorite Colors**



© Reagan Tunstall

- Which color is preferred by the most students?
 Red
- Which color is preferred by the fewest number of students?
 Yellow
- 3. How many more students prefer blue and red combined to purple?

7 students

Frequency Cards

The students in a class were surveyed about their ice cream flavor preferences. The results are shown in the bar graph below.



- 1. Which flavors are preferred by the most students? Chocolate and Swirl
- Which flavor is preferred by the fewest number of students?
 Mint
- 3. How many more students prefer chocolate to vanilla?1 student

Frequency Cards

The students in a class were surveyed regarding activity preferences. The results are shown in the bar graph below.



- Which activity is preferred by the most students?
 Swimming
- Which activity is preferred by the fewest number of students?
 Dancing
- How many more students prefer hiking and running combined to swimming?
 5 students

Frequency Cards

The number of baskets players made during basketball practice is represented by the line plot below.



- 1. What was the greatest number of baskets made? 9 students
- 2. What was the fewest number of baskets made? 8 students
- 3. How many students made fewer than 10 baskets? 7 students

Grade 5 • Unit 9 • Lesson 8 © Reagan Tunstall

Interpreting Plot Cards

The ages of students participating in a spelling bee are represented by the line plot below.



- 1. What is the age of most of the students in the spelling bee? 12 years
- 2. What ages are the fewest number of students in the spelling bee? 11 and 14 years
- 3. How many more students are 12 years old than 10 years old? **3 students**

Grade 5 • Unit 9 • Lesson 8 © Reagan Tunstall

Interpreting Plot Cards

The number of pages students read during free reading time are represented by the line plot below.



- 1. How many pages did most students read this week? 11 pages
- 2. What is the least number of pages students read this week? 12 pages
- 3. How many students read 10 or more pages? 7 students

Grade 5 • Unit 9 • Lesson 8 © Reagan Tunstall Math quiz grades for a sample of students are represented by the stem and leaf plot below.

STEM	LEAF
5	6
6	2
7	0224
8	27999
9	0

- 1. What is the lowest grade received on the quiz? 56
- 2. What is the highest grade received on the quiz? 90
- 3. What is the most frequently occurring quiz grade? 89

Science quiz grades for a sample of students are represented by the stem and leaf plot below.

STEM	LEAF
5	0057
6	
7	6
8	009
9	0004

- 1. What is the lowest grade received on the quiz? 50
- 2. What is the highest grade received on the quiz? 94
- 3. What is the most frequently occurring quiz grade? 90

Social Studies quiz grades for a sample of students are represented by the stem and leaf plot below.

STEM	LEAF
5	0
6	145
7	2348
8	0777
9	0

- 1. What is the lowest grade received on the quiz? 50
- 2. What is the highest grade received on the quiz? 90
- 3. What is the most frequently occurring quiz grade? 87

The relationship between the number of hours spent studying and math test grades for a random sample of students is represented by the scatterplot below.



Grade 5 • Unit 9 • Lesson 10 © Reagan Tunstall

- What grade was received after 2 hours of studying?
 65
- What seems to be the relationship between the number of hours spent studying and the test grade earned?
 The more the student studied, the higher the grade.
- What is a reasonable estimate for a test grade received after 7 hours of studying?
 100

The relationship between the number of hours spent studying and math test grades for a random sample of students is represented by the scatterplot below.



Grade 5 • Unit 9 • Lesson 10 © Reagan Tunstall

- What grade was received after 2 hours of studying?
 70
- What seems to be the relationship between the number of hours spent studying and the test grade earned?
 The more the student studied, the higher the grade.
- 3. What is a reasonable estimate for the test grade received after 8 hours of studying?100

The relationship between the number of hours spent studying and math test grades for a random sample of students is represented by the scatterplot below.



Grade 5 • Unit 9 • Lesson 10 © Reagan Tunstall

- What grade was received after 3 hours of studying?
 80
- What seems to be the relationship between the number of hours spent studying and the test grade earned?
 The more the student studied, the higher the grade.
- 3. What is a reasonable estimate for the test grade received after 7 hours of studying?100

The relationship between the number of hours spent studying and science test grades for a random sample of students is represented by the scatterplot below.



Grade 5 • Unit 9 • Lesson 10 © Reagan Tunstall

- What grade was received after 4 hours of studying?
 90
- What seems to be the relationship between the number of hours spent studying and the test grade earned?
 The more the student studied, the higher the grade.
- What is a reasonable estimate for the test grade received if 6 hours are spent studying?
 95

The relationship between the number of hours spent studying and science test grades for a random sample of students is represented by the scatterplot below.



Grade 5 • Unit 9 • Lesson 10 © Reagan Tunstall

- What grade was received after 1 hour of studying?
 60
- What seems to be the relationship between the number of hours spent studying and the test grade earned?
 The more the student studied, the higher the grade.
- What is a reasonable estimate for the test grade received if 0 hours are spent studying?
 50

The relationship between the number of hours spent studying and science test grades for a random sample of students is represented by the scatterplot below.



Grade 5 • Unit 9 • Lesson 10 © Reagan Tunstall

- What grade was received after 5 hours of studying?
 100
- 2. What seems to be the relationship between the number of hours spent studying and the test grade earned?The more the student studied, the higher the grade.
- What is a reasonable estimate for the test grade received if 7 hours are spent studying?
 100

A sweater costs \$25. The sales tax rate is 7%.

How much is the sales tax? \$1.75

What is the total cost of the sweater, including tax? \$26.75

A jacket costs \$40. The sales tax rate is 7%.

How much is the sales tax? \$2.80

What is the total cost of the jacket, including tax? \$42.80

A dress costs \$50. The sales tax rate is 7%.

- How much is the sales tax?
 \$3.50
- What is the total cost of the dress, including tax?
 \$53.50

A bike costs \$105. The sales tax rate is 8%.

- How much is the sales tax?
 \$8.40
- What is the total cost of the bike, including tax?
 \$113.40

A book costs \$12. The sales tax rate is 8%.

- How much is the sales tax?
 \$0.96
- What is the total cost of the book, including tax?
 \$12.96

A necklace costs \$20. The sales tax rate is 8%.

1. How much is the sales tax? \$1.60

What is the total cost of the necklace, including tax? \$21.60

Gross Income: \$2,200

Operating Expenses: \$1,875

Net Income = \$325

Grade 5 • Unit 9 • Lesson 14 © Reagan Tunstall

Gross Income: \$2,400

Operating Expenses: \$1,900

Net Income = \$500

Grade 5 • Unit 9 • Lesson 14 © Reagan Tunstall

Gross Income: \$3,100

Operating Expenses: \$2,700

Net Income = \$400

Grade 5 • Unit 9 • Lesson 14 © Reagan Tunstall

Gross Income: \$3,300

Operating Expenses: \$2,850

Net Income = \$450

Grade 5 • Unit 9 • Lesson 14 © Reagan Tunstall

Gross Income: \$2,950

Operating Expenses: \$2,200

Net Income = \$750

Grade 5 • Unit 9 • Lesson 14 © Reagan Tunstall

Gross Income: \$3,750

Operating Expenses: \$3,405

Net Income = ____**\$345**____

Grade 5 • Unit 9 • Lesson 14 © Reagan Tunstall

Gross Income: \$1,975

Operating Expenses: \$1,650

Net Income = \$325

Grade 5 • Unit 9 • Lesson 14 © Reagan Tunstall

Gross Income: \$2,850

Operating Expenses: \$2,525

Net Income = \$325

Grade 5 • Unit 9 • Lesson 14 © Reagan Tunstall

Gross Income: \$2,875

Operating Expenses: \$2,610

Net Income = \$265

Grade 5 • Unit 9 • Lesson 14 © Reagan Tunstall

Gross Income: \$3,025

Operating Expenses: \$2,705

Net Income = \$320

Grade 5 • Unit 9 • Lesson 14 © Reagan Tunstall

Gross Income: \$3,800

Operating Expenses: \$3,575

Net Income = \$225

Grade 5 • Unit 9 • Lesson 14 © Reagan Tunstall

Gross Income: \$2,990

Operating Expenses: \$2,605

Net Income = \$385

Grade 5 • Unit 9 • Lesson 14 © Reagan Tunstall

What type of data is represented by a bar graph?

category

Grade 5 • Unit 9 • Lesson 19 © Reagan Tunstall

What type of data is represented by a line plot?

numerical

Grade 5 • Unit 9 • Lesson 19 © Reagan Tunstall

How are frequency tables and bar graphs related?

They both are used to interpret data.

Grade 5 • Unit 9 • Lesson 19 © Reagan Tunstall

Represent the data set below using a stem and leaf plot.

12, 18, 18, 22, 24, 28, 31, 33, 34, 34, 34, 40, 41, 49

STEM	LEAF
1	2, 8, 8
2	2, 4, 8
3	1, 3, 4, 4, 4
4	0, 1, 9

Grade 5 • Unit 9 • Lesson 19

Math Hunt Cards

© Reagan Tunstall

Represent the data below using a line plot.

7, 9, 5, 5, 8, 9, 9, 9, 5, 5, 7, 8, 9, 7, 9

Describe what you notice about the distribution.



Sample answer: 5 and 9 occur most often.

Grade 5 • Unit 9 • Lesson 19

Math Hunt Cards

© Reagan Tunstall

English test grades of a random sample of students are represented by the stem and leaf plot below.

STEM	LEAF
5	3 8
6	4
7	268
8	2789
9	3 5

Describe what you notice about the data set. Sample answer: Students most frequently scored grades in the 80s.

How much tax would be paid on a property with a value of \$120,000 if the yearly property tax rate is 4%?

\$48,000

Grade 5 • Unit 9 • Lesson 19 © Reagan Tunstall

Suppose you plan to buy a printer. State which payment method you would use to purchase the printer. Write an explanation for your choice.

> Sample answer: I would use cash because a printer is not very expensive.

Grade 5 • Unit 9 • Lesson 19

© Reagan Tunstall

A restaurant has a gross income of \$43,120 for the month of July. The operating expenses for July are \$29,854. What is the restaurant's net profit for July?

\$13,266

Grade 5 • Unit 9 • Lesson 19 © Reagan Tunstall

Create a list of possible expenses that may be included in a budget.

Answers will vary.

Grade 5 • Unit 9 • Lesson 19 © Reagan Tunstall

Describe the importance of creating a budget.

Sample answer:

A budget helps you to spend what you can afford. It can also help you to save money.

Grade 5 • Unit 9 • Lesson 19 © Reagan Tunstall

Provide an example of a budget that is balanced and reasonable. Explain your thought processes.

Answers will vary.

Grade 5 • Unit 9 • Lesson 19 © Reagan Tunstall