Part 1

1. The table shows the prices of different sized jars of peanut butter. Which of the jars has the least unit price?

Prices of Peanut Butter	
Size	**Price**
12-oz	$3.00
18-oz	$4.40
25-oz	$6.75
32-oz	$8.25

A. 12-oz jar

B. 18-oz jar

C. 25-oz jar

D. 32-oz jar

2. The enrollment at a community college this year is 115% of last year's enrollment. If there were 1240 students enrolled at the college last year, how many students are enrolled this year?

F. 1054 students

G. 1302 students

H. 1378 students

J. 1426 students

3. SHORT ANSWER A pair of jeans that normally sells for $35 is on sale for 20% off. Find the sale price of the jeans. Then find the total cost of the jeans if sales tax is 6%.

4. Vicky jogged $2\frac{3}{4}$ miles in $\frac{1}{2}$ hour. What was her average rate of speed in miles per hour?

A. $1\frac{3}{8}$ miles per hour

B. $3\frac{1}{4}$ miles per hour

C. $5\frac{1}{2}$ miles per hour

D. $6\frac{3}{4}$ miles per hour

5. In a recent survey, 55% of pet owners have more than one pet. If there were 620 pet owners surveyed, which proportion can be used to find the number of people who own more than one pet?

F. $\frac{100}{55} = \frac{n}{620}$

G. $\frac{55}{100} = \frac{n}{620}$

H. $\frac{55}{100} = \frac{620}{n}$

J. $\frac{55}{620} = \frac{n}{100}$

6. The average distance from the Earth to the moon is about 384,000 kilometers. What is this number written in scientific notation?

A. 384×10^9 kilometers

B. 384×10^8 kilometers

C. 3.84×10^6 kilometers

D. 3.84×10^5 kilometers

7. SHORT ANSWER Marc is finding the product of the monomials $3c^2d^4$ and $-4c^3d$. His work is shown below. What error did he make?

Marc
$3c^2d^4(-4c^3d)$
$= 3(-4)(c^2c^3)(d^4d)$
$= -12c^6d^4$

8. A muffin recipe calls for 4 cups of sugar and yields 36 muffins. If Amelia only wants to make 24 muffins, how much sugar will she need?

F. 6 cups

G. $3\frac{3}{4}$ cups

H. $2\frac{2}{3}$ cups

J. $2\frac{1}{2}$ cups

9. How much simple interest is earned on an investment of $1250 if the money is invested for 5 years at an annual interest rate of 4.5%?

A. $1531.25

B. $1306.25

C. $281.25

D. $56.25

10. Which point on the number line shows $\sqrt{45}$?



F. point *F*

G. point *G*

H. point *H*

J. point *I*

11. A sprinter runs 100 meters in 11.5 seconds. What is the sprinter's average running rate in meters per second? Round to the nearest tenth.

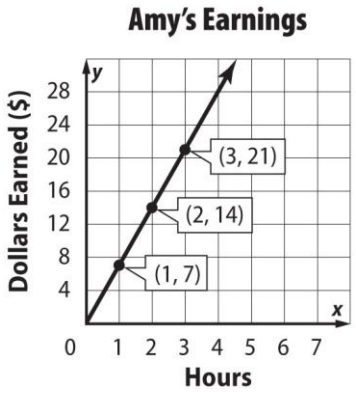
A. 8.7 meters per second

B. 9.5 meters per second

C. 10.1 meters per second

D. 11.5 meters per second

12. Amy earns $7 per hour for babysitting. Which of the following statements is true about the relationship between the number of hours Amy works and her earnings?



F. The relationship is proportional because the graph of the line passes through the origin and has a constant rate of change.

G. The relationship is proportional because there is not a constant rate of change between the points.

H. The relationship is not proportional because the points do not form a straight line.

J. The relationship is not proportional because the line through the points does not intersect the origin.

13. SHORT ANSWER Estimate 58% of 121 by using 10%. Show your work.

14. Which value is equivalent to 4^{-3}?

A. $-\frac{1}{64}$

B. –12

C. 12

D. $\frac{1}{64}$

15. Simplify the complex fraction.

$$\frac{\frac{4}{3}}{\frac{2}{5}}$$

F. $\frac{3}{10}$

G. $\frac{8}{15}$

H. $\frac{15}{8}$

J. $\frac{10}{3}$

16. SHORT ANSWER An electrician charges a $50 fee to make a service call plus $25 per hour he works. Complete the table. Then determine whether the relationship between the two variables is proportional. Explain your reasoning.

Cost of Hiring an Electrician	
Hours	**Cost ($)**
1	**75**
2	
3	
4	

17. Last year there were 43 science projects submitted by students at a science fair. This year there are 52 science projects. To the nearest tenth, what is the percent of change in the number of science projects submitted?

A. 17.3% decrease

B. 17.3% increase

C. 20.9% decrease

D. 20.9% increase

18. Which expression is equivalent to the expression below?

$$a \cdot a \cdot a \cdot b \cdot a \cdot b \cdot b \cdot a \cdot b \cdot a$$

F. a^6b^4

G. $a^{-6}b^{-4}$

H. $(ab)^{10}$

J. $(ab)^2$

19. The distance from the Sun to Earth is about 1.5×10^{11} meters. Suppose light travels at a speed of 3×10^8 meters per second. About how long does it take light from the Sun to reach Earth?

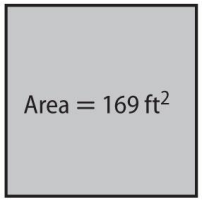
A. 4.5×10^{19} seconds

B. 1.503×10^{11} seconds

C. 5×10^3 seconds

D. 5×10^2 seconds

20. The area of a square living room is 169 square feet. What is the perimeter of the room?



F. 13 feet

G. 17 feet

H. 52 feet

J. 68 feet

21. The bookstore normally sells mechanical pencils for $6.50. This week the pencils are discounted by 25%. To the nearest cent, what is the amount of the discount?

A. $1.30

B. $1.63

C. $2.11

D. $4.88

22. Christy drove 135 miles in 2.5 hours. What was her average speed in miles per hour?

F. 50 miles per hour

G. 52 miles per hour

H. 54 miles per hour

J. 55 miles per hour

23. The table shows the populations of several states. What is the population of Ohio written in scientific notation?

State	Population
Georgia	9,400,000
Illinois	12,900,000
Ohio	11,500,000
California	36,900,000

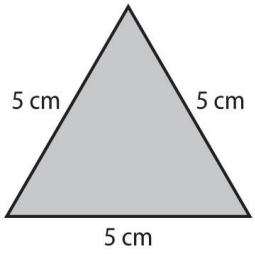
A. 1.15×10^{-8}

B. 1.15×10^{-7}

C. 1.15×10^{7}

D. 1.15×10^{8}

24. SHORT ANSWER The area of an equilateral triangle is given by the expression $\frac{s^2\sqrt{3}}{4}$, where s is the side length of the triangle. What is the area of the triangle below? Round to the nearest tenth.



25. Which of the following symbols results in a true number sentence when placed in the blank?

$$\sqrt{12.96} \bigcirc 3\frac{3}{5}$$

F. =

G. >

H. <

J. ×