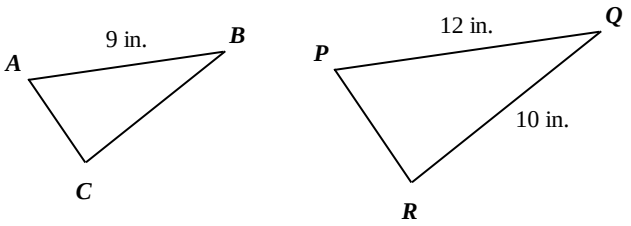
Cumulative Test 9 Study Guide, Algebra

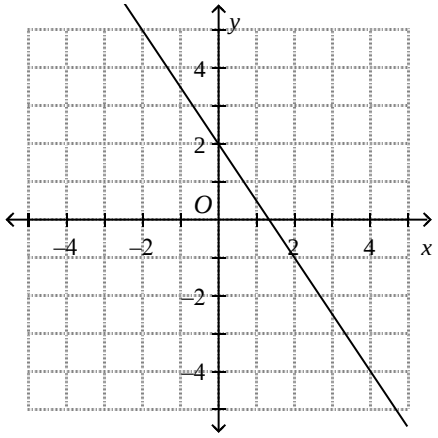
Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. In the figure, $\triangle ABC$ is similar to $\triangle PQR$. Find *BC*.



a. $7\frac{1}{2}$ in.
b. $13\frac{1}{3}$ in.
c. $10\frac{4}{5}$ in.
d. 9 in.
e. None correct

____ 2. What is the slope of the line in the graph?



a. $-\frac{3}{2}$
b. $\frac{3}{2}$
c. $-\frac{2}{3}$
d. $\frac{2}{3}$
e. None correct

Problem

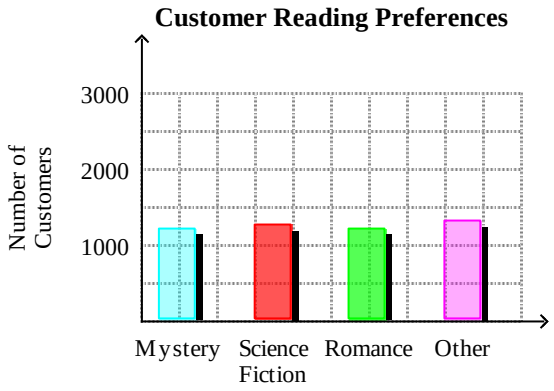
3. $(15) \bullet y \bullet \left(\frac{1}{15}\right)$

4. $x^2y - 3yx + 2yx^2 - 2xy + yx$

5. $-10 = -2x + 12$

6. $5x - (x - 10) = 22$

7. A bookstore conducted a survey of the reading preferences of its customers. The bar graph shows the results. Explain why the graph may be misleading.



8. $-6x = 3x + 27$

9. $\frac{5}{n+2} = \frac{10}{16}$

10. $\frac{p^{-8}}{q^4}$

11. $\frac{1}{d^{-8}}$

12. Karla jogs 6 miles per hour and bikes 12 miles per hour. The equation $6x + 12y = 24$ shows that she has gone a total of 24 miles. Find the intercepts and explain what each means.

13. Find the GCF
$24m^3n^4 + 32mn^5p$

14. $\frac{r^2}{q}\left(\frac{r^2}{q^3} + \frac{7q^3}{w}\right)$

15. A school raised $15,432 for a new computer lab. The money will be allotted as follows: 50% for construction costs, 45% for technology purchases, and 5% for incidental expenses. Using a proportion, find the amount that will be spent on technology purchases.

16. Determine the values for which the rational expression is undefined.
$\frac{1+3x}{x+8}$

17. Translate the sentence below into an inequality.

    The product of 11 and a number is less than 121.

18. A shipping container is in the shape of a cube with a side length of $3x$ inches. What is the volume of the container?

19. Provide a counterexample for the statement below.

    If a student is a teenager, then she is 14 years old.

20. $\frac{2}{3} - x = \frac{2}{9}$

21. A car travels at a constant speed, as shown in the table below. What is the rate of change?

Hours	2	4	6	8
Miles	110	220	330	440

22. $3 = -14a - 1$

Cumulative Test 9 Study Guide, Algebra
Answer Section

MULTIPLE CHOICE

1. ANS: A PTS: 1 REF: Lesson 31: Using Rates, Ratios, and Proportions
   NAT: NCTM G.4b TOP: End-of-Course Exam MSC: Alg1_S04_00003
2. ANS: A PTS: 1 REF: Lesson 41: Finding Rates of Change and Slope
   NAT: NCTM A.4 TOP: End-of-Course Exam MSC: Alg1_S05_00001

PROBLEM

3. ANS:
   y

   PTS: 1
4. ANS:
   $3x^2y - 4xy$

   PTS: 1
5. ANS:
   $x = 11$

   PTS: 1
6. ANS:
   3

   PTS: 1
7. ANS:
   Sample: The large increments of the scale make the data values appear to be closer than they really are.

   PTS: 1 REF: Lesson 27: Identifying Misleading Representations of Data
   NAT: NCTM DAP.1a TOP: Cumulative Test 8
   MSC: Alg1_S03_00097
8. ANS:
   $x = -9$

   PTS: 1
9. ANS:
   6

   PTS: 1
10. ANS:
    $\frac{1}{p^8 q^4}$

    PTS: 1
11. ANS:

d^{-8}

PTS: 1

12. ANS:
The x-intercept is 4 and the y-interecept is 2. They mean that to go 24 miles by one mode, she could run for 4 hours or bike for 2 hours.

PTS: 1

13. ANS:
$8mn^4$

PTS: 1

14. ANS:
$\frac{r^4}{q^4} + \frac{7q^2r^2}{w}$

PTS: 1

15. ANS:
$\frac{t}{15,432} = \frac{45}{100}; \$6994.40$

PTS: 1

16. ANS:
$x \neq -8$

PTS: 1

17. ANS:
$11n < 121$

PTS: 1

18. ANS:
$27x^3$ cubic inches

PTS: 1

19. ANS:
15-year-old is a teenager but is not 14 years old.

PTS: 1

20. ANS:
$\frac{4}{9}$

PTS: 1

21. ANS:
55 miles per hour

PTS: 1

22. ANS:

$-\frac{2}{7}$

PTS: 1