TEST NAME: **Explorations Review**
TEST ID: **834413**
GRADE: **08 - Eighth Grade**
SUBJECT: **Mathematics**
TEST CATEGORY: **My Classroom**

1. **Which of the following represents the standard form of** 3.1×10^5?

    A.   0.000031

    B.   0.00031

    C.   310,000

    D.   3,100,000

2. What is the value of x in the equation $\dfrac{x-4}{6} = \dfrac{3}{7}$?

    A. $1\dfrac{3}{7}$

    B. $3\dfrac{1}{7}$
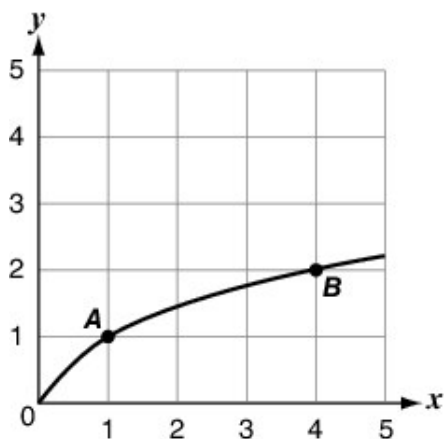
    C. $4\dfrac{1}{14}$

    D. $6\dfrac{4}{7}$

3. Which expression is equivalent to $5^6 \div 5^3$?

    A. 5^2

    B. 5^3

    C. 5^9

4. **Which equation has an infinite number of solutions?**

    A. $12 = 3y$

    B. $8q + 5 = 21$

    C. $2x + 7 - 2x = 7$

    D. $4p - 4 = 4p + 4$

5. Which number is equivalent to 1.89×10^7?

    A. 1,890,000

    B. 18,900,000

    C. 189,000,000

    D. 1,890,000,000

6. **The total cost of 10 gallons of regular paint and 15 gallons of deluxe paint is $315. If the deluxe paint costs $6 more per gallon than the regular paint, what is the cost for 20 gallons of regular paint?**

    A. $80.00

    B. $180.00

    C. $247.20

    D. $252.00

7. Which statement **best** describes the function below between points A and B?

    A. The function is increasing and linear.

    B. The function is decreasing and linear.

    C. The function is increasing and nonlinear.

    D. The function is decreasing and nonlinear.

8. Which is an equation of a line that passes through the points ($^-$3, 3) and (2, 8)?

    A. $y = x + 6$

    B. $y = 2x + 3$

    C. $y = 2x + 8$

9. **The table shows the production cost for various quantities of widgets made.**

Production Cost of Widgets

Number n of Widgets Made	Total Cost $C(n)$
200	$25,000
250	$26,250
450	$31,250
600	$35,000

Which equation can be used to calculate $C(n)$, the total cost of producing n widgets?

A. $C(n) = 200n + 25,000$

B. $C(n) = 25n + 24,800$

C. $C(n) = 25n + 20,000$

D. $C(n) = 125n + 25,000$

10. **Which of the following equation has a slope of -3 and goes through the point $(-2, 7)$?**

A. $y - 2 = -3(x + 7)$

B. $y + 7 = -3(x - 2)$

C. $y - 7 = -3(x + 2)$

D. $y + 2 = -3(x - 7)$

11. **Which equation has a slope of -1 and an x-intercept of 2?**

A. $x + y = 2$

B. $x - y = 2$
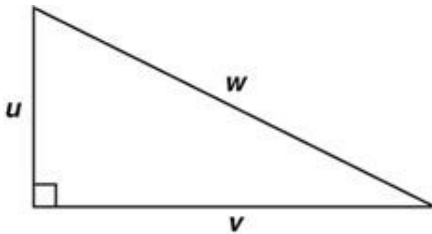
C. $x + y = -2$

D. $x - y = -2$

12. The table below shows the cost of a large scoop of ice cream with toppings at an ice cream shop.

Number of Toppings	Cost
3	$4.06
4	$4.65
6	$5.83

What is the cost of a large scoop of ice cream with no toppings?
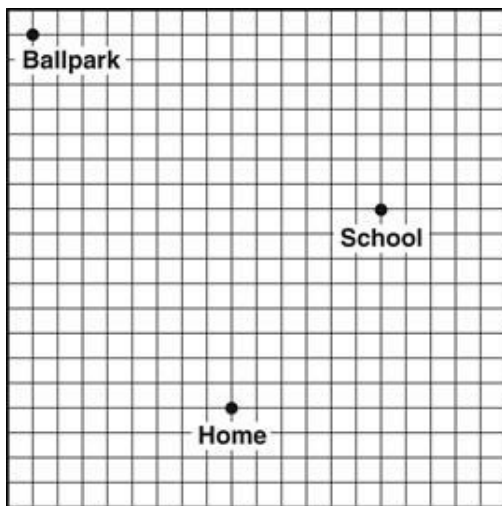
A. $3.47

B. $2.29

C. $1.35

D. $0.59

13. **In the right triangle below, *w* is the hypotenuse, and *u* and *v* are the legs.**

Which of the following statements is true, based on the Pythagorean theorem?

A. $v^2 = (u + w)^2$

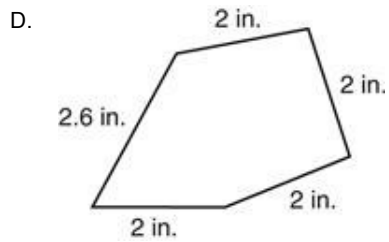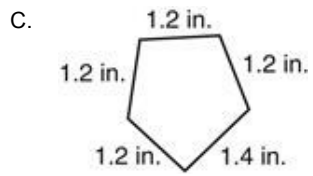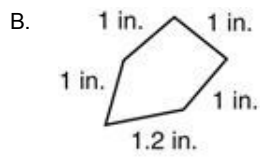B. $w^2 = (u + v)^2$

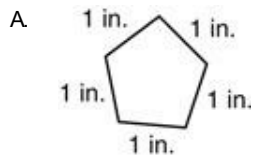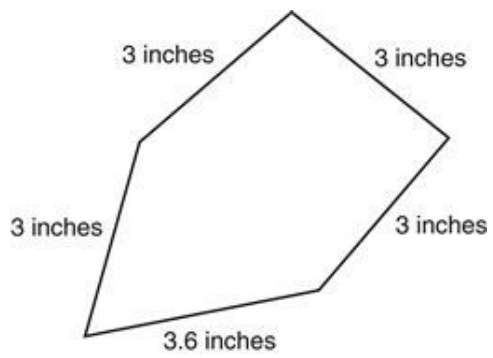C. $v^2 = u^2 + w^2$

D. $w^2 = u^2 + v^2$

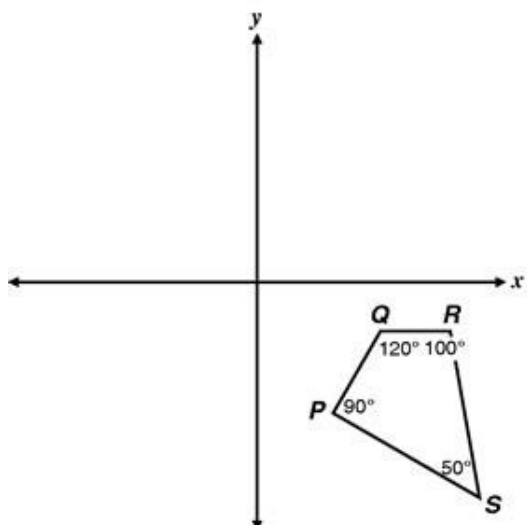14. **Jeff drew the scale map showing his home, his school, and the ballpark as shown.**

If the actual distance from his home to the ballpark is 1.7 miles, what is the scale of this map?

A. 1 mile = 10 blocks

B. 1 mile = 12 blocks

C. 8 miles = 15 blocks

D. 15 miles = 8 blocks

15. **Which figure is similar to the one shown?**
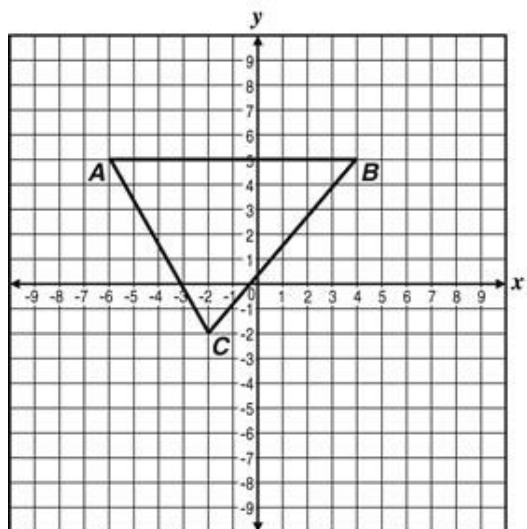
3 inches   3 inches

3 inches   3 inches

3.6 inches

A.

1 in.   1 in.

1 in.   1 in.

1 in.

B.

1 in.   1 in.

1 in.   1 in.

1.2 in.

C.

1.2 in.

1.2 in.   1.2 in.

1.2 in.   1.4 in.

D.

2 in.

2 in.

2.6 in.

2 in.

2 in.

16. **Quadrilateral *PQRS* is shown below.**

Quadrilateral *PQRS* is reflected over the *y*-axis to create Quadrilateral *P'Q'R'S'*. Which angle has the greatest measure?

A. $\angle P'$

B. $\angle Q'$

C. $\angle R'$

D. $\angle S'$

17. **If Triangle *ABC* is translated 4 units to the left and 2 units down into Triangle *DEF*, what will be the coordinates of Point *D*?**

A. (−10, 3)

B. (−8, 1)

C. (−6, −4)

D. (0, 3)

18. The vertices of a trapezoid are $E(2, 2)$, $F(^-2, 2)$, $G(^-1, 1)$, and $H(1, 1)$. The trapezoid will be reflected over the *x*-axis. What will be the coordinates of the image point E'?

   A. $(^-2, ^-4)$

   B. $(^-2, ^-2)$

   C. $(^-2, 2)$

   D. $(2, ^-2)$

19. Which number is greater than 7 but less than 8?

   A. $\sqrt{55}$

   B. $\sqrt{35}$

   C. $\sqrt{15}$

20. In which set of numbers does the real number $^-\sqrt{2}$ belong?

   A. irrational and integer

   B. irrational only

   C. rational and integer

   D. rational only

21. **Given that the square root of 225 is 15 and the square root of 256 is 16, which number is closest to the square root of 240?**

   A. 15.1

   B. 15.5

   C. 15.8

   D. 15.9

22. **The square root of 144 is 12, because** $12 \times 12 = 144$. **The square root of 169 is 13, because** $13 \times 13 = 169$. **Which expression will give the closest approximation to the square root of 156?**

   A. $156 \div 2$

   B. $13 - \left(\dfrac{169 - 144}{2} \right)$

   C. $12 + \left(\dfrac{13 - 12}{2} \right)$
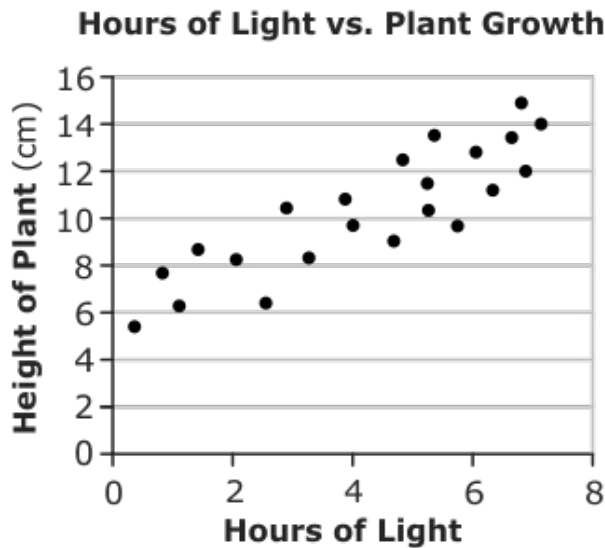
   D. $144 + \left(\dfrac{169 - 144}{2} \right)$

23. **Which number is irrational?**

A. $-\sqrt{81}$

B. $\dfrac{\sqrt{4}}{10}$

C. $\sqrt{36}$

D. $\sqrt{8}$

24. Which number is a natural number?
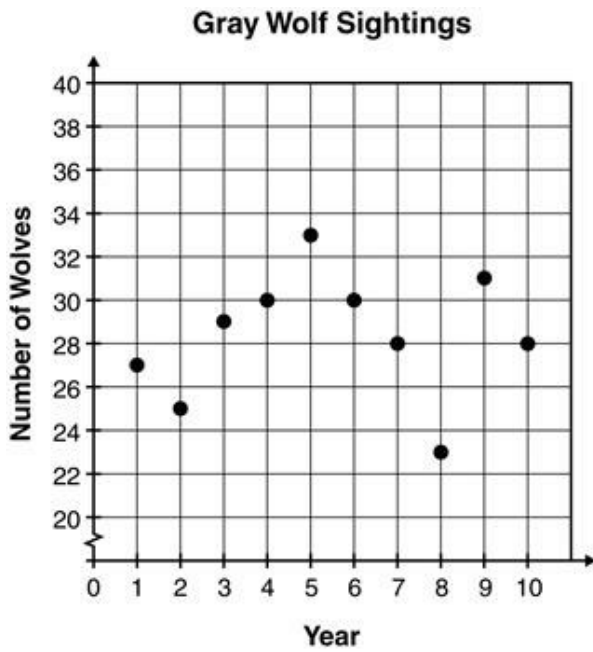
A. 1

B. 0

C. $^{-}1$

25. The scatterplot below shows the effect the amount of light a plant receives each day has on the growth of the plant over a 30-day period.

Based on a linear model, **about** how tall would a plant be if it received 6 hours of light each day?
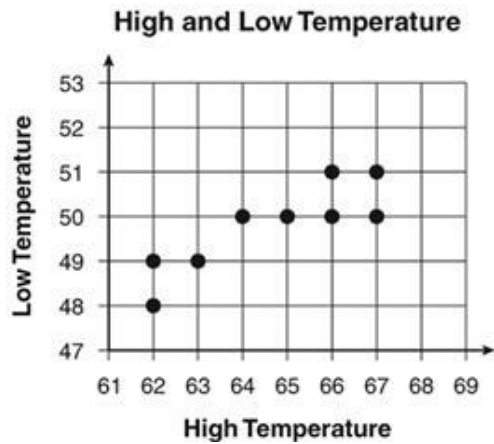
A. 8 cm

B. 12 cm

C. 14 cm

26. **A scientist recorded the number of gray wolves in an area over a 10-year period. The data is shown in the graph below.**

Gray Wolf Sightings

When was the wolf population the largest?

A. Year 4

B. Year 5

C. Year 8

D. Year 9

27. **The scatterplot below shows the relationship between the high and the low temperatures in Monterey for nine days in May.**

High and Low Temperature

Which statement best describes the relationship?

A. There is a positive correlation.

B. There is a negative correlation.

C. The relationship is constant.

D. There is no relationship.

28. The scatterplot shows the relationship between the altitude and thickness of ice on the wings of an airplane.