Math 8 *(Swanick)*

PSSA Review: Domain 1

(SchoolNet: PSSA18D1)

Name: _____ Date: _____ Period: _____

1. _____ 2. _____ 3. _____ 4. _____ 5. _____

6. _____ 7. _____ 8. _____ 9. _____ 10. _____

11. _____ 12. _____ 13. _____ 14. _____ 15. _____

8th Grade PSSA Math Rev (Domain 1)

1. Which integers, when placed in the boxes shown below, make the inequality **true**?

   A. 7 and 8
   B. 6 and 7
   C. -7 and -6
   D. -8 and -7

   $$\Box < -\sqrt{60} < \Box$$

2. What is true about the number $\frac{7}{12}$?

   A. It is an irrational number.
   B. It has no decimal expansion.
   C. The decimal equivalent will eventually repeat.
   D. The decimal equivalent is a terminating number.

3. Which inequality is true?

   A. $\sqrt{195} > 14.1$
   B. $\sqrt{205} < 14.1$
   C. $\sqrt{208} < 14.1$
   D. $\sqrt{218} > 14.1$

4. Which set contains all irrational numbers?

   A. $\sqrt{3}, \pi, 4\sqrt{5}$

   B. $\frac{5}{9}, \sqrt{3}, 0.\overline{3}$

   C. $0, \frac{3}{4}, 1.914$

   D. $\sqrt{\frac{1}{2}}, 2\sqrt{5}, \sqrt{25}$

5. The perimeter of the sector below is $(24 + 6\pi)$ centimeters. Which measurement is the **best** approximation of the perimeter of this sector?
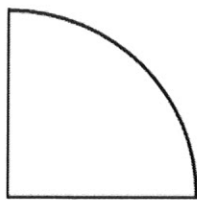
   A. 30 cm

   B. 41 cm

   C. 43 cm

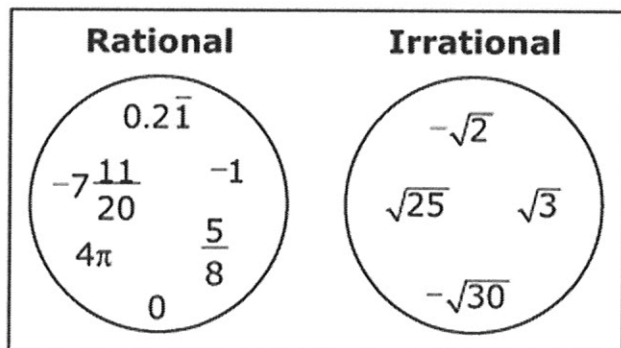   **D.** 60 cm

6. Which equation has an irrational solution?

   A. $x^2 = 2$
   B. $x^2 = 81$
   C. $x^2 = 27$
   D. $x^2 = 64$

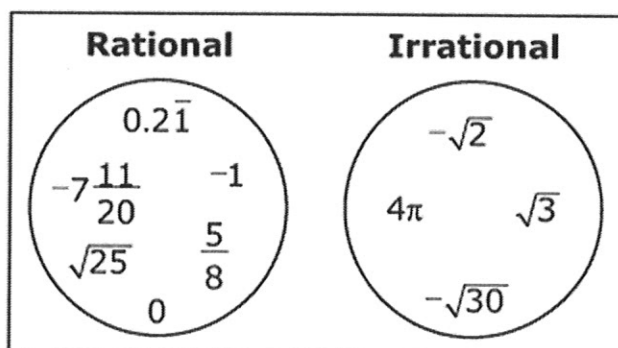**7.** A student placed the ten numbers shown into a Venn diagram.

$\sqrt{25}$	$0.2\overline{1}$	4π	-1	$\sqrt{3}$
$-7\frac{11}{20}$	$-\sqrt{2}$	0	$-\sqrt{30}$	$\frac{5}{8}$

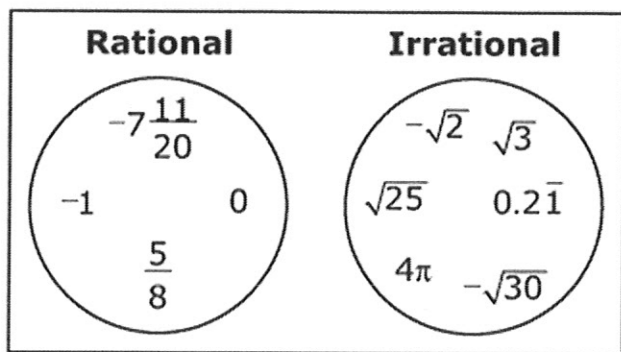Which Venn diagram shows the correct relationships for the numbers?
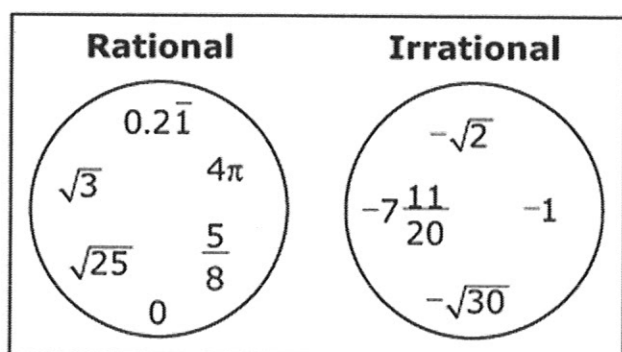
A.

C.

B.

D.

8. Which of these is a rational number?

A. $\sqrt{254}$

B. $\dfrac{\sqrt{125}}{5}$

C. $-\dfrac{\sqrt{4}}{2}$

D. $-\sqrt{3}$

9. The amount of a solution used in a science class experiment is $0.3\bar{8}$ liquid pint. Which fraction is equivalent to this number?

A. $\dfrac{19}{50}$

B. $\dfrac{38}{99}$

C. $\dfrac{35}{90}$

D. $\dfrac{107}{90}$

10. Which statement is false?

A. π is an example of an irrational number.

B. Irrational numbers have no exact decimal equivalent.

C. An irrational number can be written as a ratio using two integers.

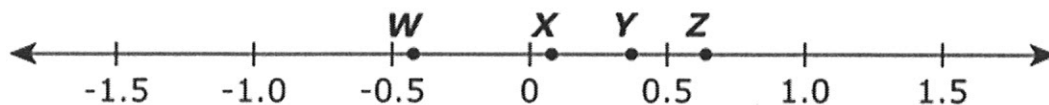D. An irrational number can be written as a non-terminating, non-repeating decimal.

11. Which sequence places the numbers $\sqrt{3.5}, \sqrt{4}$ *and* $\sqrt{\pi}$ in order from least to greatest?

A. $\sqrt{4}, \sqrt{3.5}, \sqrt{\pi}$

B. $\sqrt{\pi}, \sqrt{4}, \sqrt{3.5}$

C. $\sqrt{\pi}, \sqrt{3.5}, \sqrt{4}$

D. $\sqrt{3.5}, \sqrt{\pi}, \sqrt{4}$

12. How much greater is $\sqrt{47}$ than $\sqrt{37}$?

    A. Exactly 1

    B. Exactly 10

    C. A little less than 1

    D. A little more than 3

13. Which equation is true using the points on this number line?

    A. $\sqrt{Y} = W$

    B. $\sqrt{Y} = X$

    C. $\sqrt{Y} = Z$

    D. $\sqrt{Y} = 0$

14. A teacher wrote the following statements comparing $\sqrt{6}$ and $\sqrt{7}$.

I. The value of $\sqrt{6}$ is between the whole numbers 5 and 7, whereas the value of $\sqrt{7}$ is between the whole numbers 6 and 8.

II. The value of $\sqrt{6}$ is between 2.43 and 2.45, whereas the value of $\sqrt{7}$ is between 2.63 and 2.65. Which statement or statements are **correct**?

    A. I only

    B. II only

    C. both I and II

    D. neither I nor II

15. What is the greatest whole number value of n, for which $\sqrt{n}$ lies between the same integer values as $\sqrt{40}$ lies?

    A. 36

    B. 39

    C. 48

    D. 49

Math 8 *(Swanick)*
PSSA Review: Domain 2

(SchoolNet: PSSA18D2)

Name: _____ Date: _____ Period: _____

1. _____ 2. _____ 3. _____ 4. _____ 5. _____

6. _____ 7. _____ 8. _____ 9. _____ 10. _____

11. _____ 12. _____ 13. _____ 14. _____ 15. _____

8th Grade PSSA Math Rev (Domain 2)

1.

Which expression is equivalent to $(4^{-6} \cdot 4^4) + \left(\dfrac{2^6}{2^3}\right)$?

A. $\dfrac{1}{4^2} + 2^3$

B. $\dfrac{1}{4^{24}} + 2^3$

C. $\dfrac{1}{4^2} + 2^2$

D. $\dfrac{1}{4^{24}} + 2^2$

2. Which statement is true?

A. $\sqrt{2}$ is rational because it can be written as an integer.

B. $\sqrt{2}$ is rational because it can be written as $\dfrac{a}{b}$ or $\dfrac{-a}{b}$ where a and b are integers and $b \neq 0$.

C. $\sqrt{2}$ is irrational because it cannot be written as a terminating decimal.

D. $\sqrt{2}$ is irrational because it cannot be written as $\dfrac{a}{b}$ where a and b are integers and $b \neq 0$.

3. For what value of n is $\dfrac{9^2}{9^n} = 729$?

A. -5
B. -1
C. 1
D. 5

4. The speed of light is approximately $6.71 \cdot 10^8$ miles per hour. Approximately how many miles will a light signal travel in 0.14 hour?

A. 6.85×10^{-8}

B. 6.85×10^8
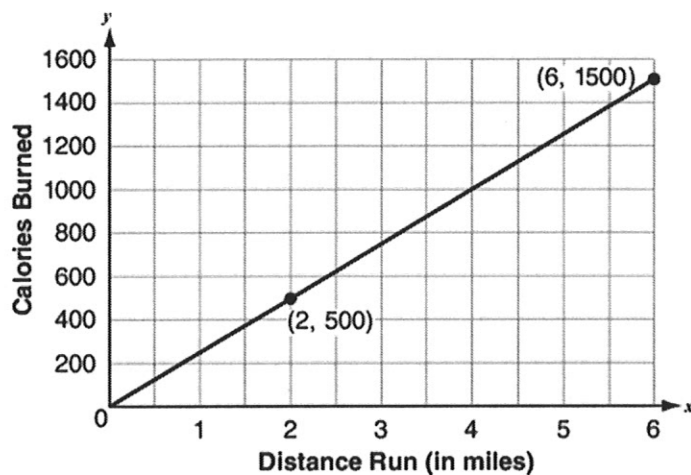
C. 9.394×10^{-7}

D. 9.394×10^7

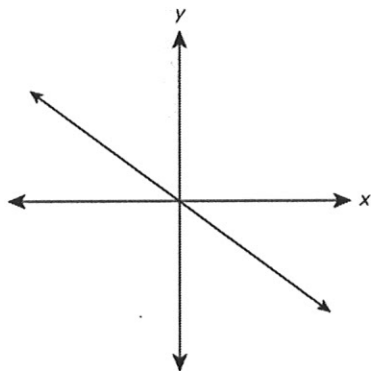**5.**   If $x^2 = 7$ what is a value of x?

A. $\sqrt{7}$
B. 3.5
C. $\sqrt{49}$
D. 14

6. Benito drew a graph representing the number of miles he ran and the number of calories he burned. What is the unit rate in calories per mile?

A. 3
B. 4
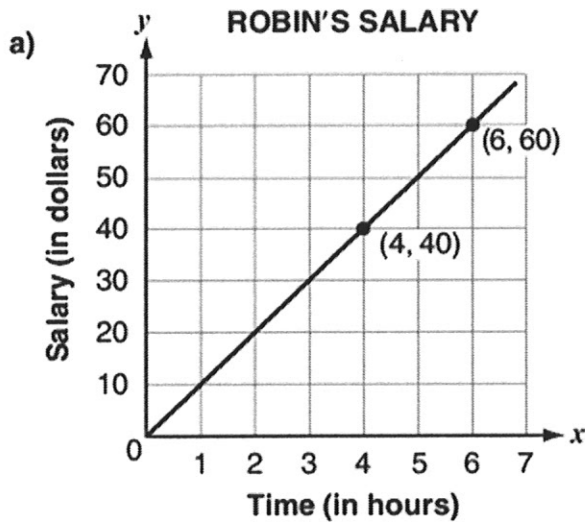C. 250
D. 1,000

7. The graph shows the line $y= mx$.

If the y-intercept changes to (0, 10), what is the equation of the new line?

A. $y= 10mx$
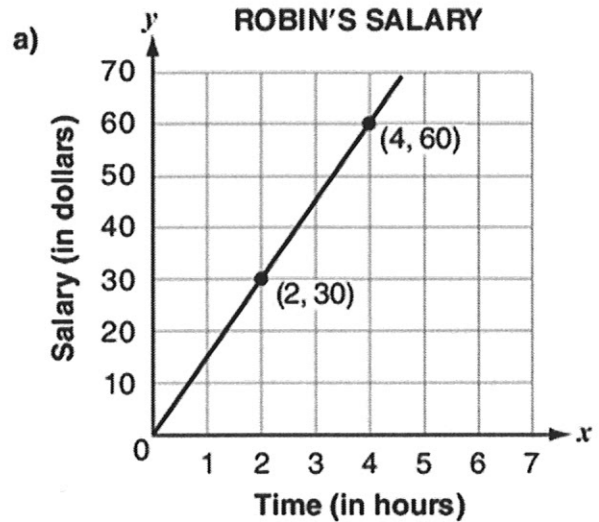B. $y + 10 = mx$
C. $y - 10 = mx$
D. $y = (m + 10)x$

8. Robin works 5 hours a day, and Dave works 6 hours a day. Their hourly salaries are such that Robin's earnings in 3 days are the same as Dave's earnings in 5 days. Which graph and equation **could** represent Robin's and Dave's salaries after *t* hours?
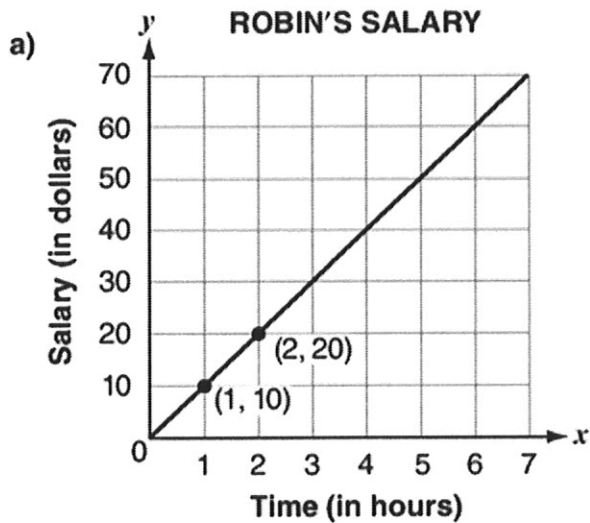
A.

a)

ROBIN'S SALARY

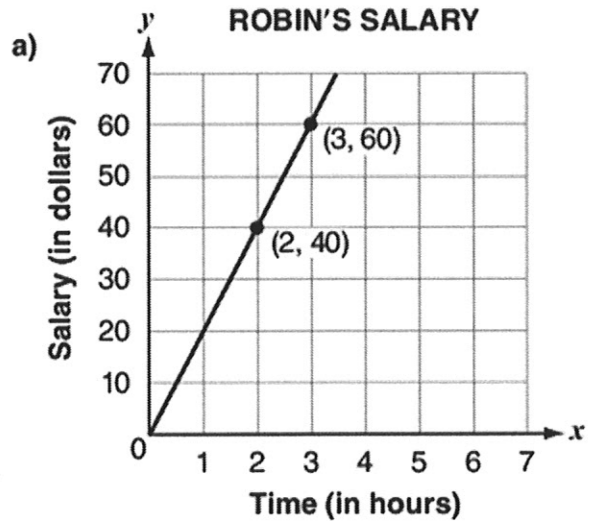(6, 60)
(4, 40)

Salary (in dollars) — 70, 60, 50, 40, 30, 20, 10

Time (in hours) — 1 2 3 4 5 6 7

b) **Dave's Salary = 5t**

B.

a)

ROBIN'S SALARY

(4, 60)
(2, 30)

Salary (in dollars) — 70, 60, 50, 40, 30, 20, 10

Time (in hours) — 1 2 3 4 5 6 7

b) **Dave's Salary = 15t**

C.

a)

ROBIN'S SALARY

(2, 20)
(1, 10)

Salary (in dollars) — 70, 60, 50, 40, 30, 20, 10

Time (in hours) — 1 2 3 4 5 6 7

b) **Dave's Salary = 15t**

D.

a)

ROBIN'S SALARY

(3, 60)
(2, 40)

Salary (in dollars) — 70, 60, 50, 40, 30, 20, 10

Time (in hours) — 1 2 3 4 5 6 7

b) **Dave's Salary = 2t**

9. Mario's speed while riding his bike is shown in the graph.

Amanda's speed while riding her bike is $\dfrac{18 \text{ miles}}{2 \text{ hours}}$.

Which statement is true?

A. Mario's speed and Amanda's speed are equivalent.

B. Mario's speed is faster than Amanda's speed.

C. Amanda's speed is 1 mile per hour faster than Mario's speed.

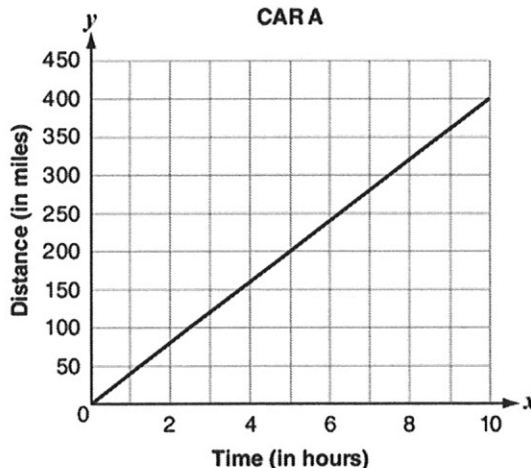D. Amanda's speed is 10 miles per hour faster than Mario's speed.
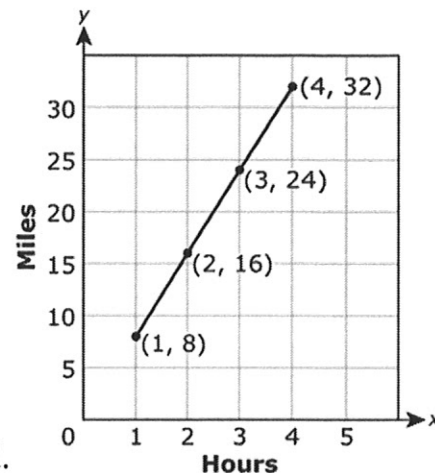
10. The distances traveled by car A and car B after x hours are represented by the graph and table below.

CAR B

x (Time)	y (Distance)
3	240
6	480
8	640
12	960

Which statement is **true**?

A. The speed of car A is twice the speed of car B.

B. The speed of car B is twice the speed of car A.

C. The speed of car A is 2.4 times the speed of car B.

D. The speed of car B is 2.4 times the speed of car A.

11. Which set of equations represents the solution to $2x - 6 = 14$?

A. $2x-6=14$

   $2x=8$

   $x=4$

B. $2x-6=14$

   $2x=20$

   $x=10$

C. $2x-6=14$

   $2x=8$

   $x=16$

D. $2x-6=14$

   $2x=20$

   $x=40$

12. At which point would the graphs of the equations below intersect?

$$\begin{cases} 3x - 4y = -2 \\ -6x + 5y = 7 \end{cases}$$

A. $(-2, -1)$
B. $(2, -1)$
C. $(-1, 2)$
D. $(-1, -2)$

13. A student wants to determine the solution to the system of linear equations shown.

$$-2x + y = 3 \qquad x + 3y = 12$$

Which first step would allow the student to eliminate the x-terms?
A. Multiply $x + 3y = 12$ by 2.
B. Multiply $-2x + y = 3$ by 3.
C. Multiply $x + 3y = 12$ by -2.
D. Multiply $-2x + y = 3$ by -3.

14. Solve the equation $2(3x - 4) = 8x - 4 - 2x$.
A. no solution
B. infinitely many solutions
C. $x = -1$
D. $x = 4$

15.

What is the solution to the equation shown below?

$$\frac{x+5}{2} = 2(x+3)$$

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

B. -1

C. -2

D. $-\dfrac{7}{3}$

Math 8 *(Swanick)*
PSSA Review: Domain 4

(SchoolNet: PSSA18D4)

Name: _____ Date: _____ Period: _____

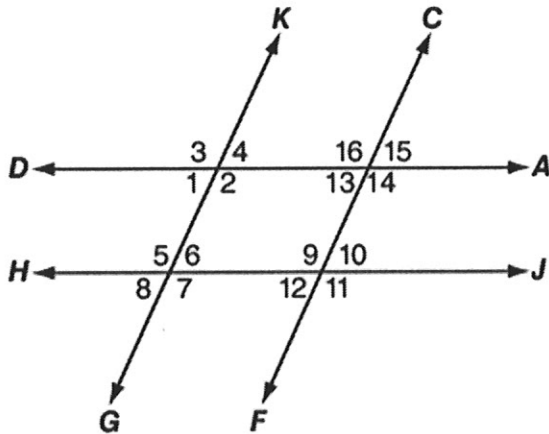1. _____   2. _____   3. _____   4. _____   5. _____

6. _____   7. _____   8. _____   9. _____   10. _____

11. _____   12. _____   13. _____   14. _____   15. _____

8th Grade PSSA Math Rev (Domain 4)

1. In the figure below, line AD is parallel to line HJ and line GK is parallel to line CF.


Which argument **correctly** explains why $m\angle 3 = m\angle 9$?

A. $m\angle 3 = m\angle 15$, as they are exterior angles

$m\angle 15 = m\angle 10$, as they are corresponding angles

$m\angle 10 = m\angle 9$, as they are supplementary angles

B. $m\angle 3 = m\angle 8$, as they are vertical angles

$m\angle 8 = m\angle 12$, as they are corresponding angles

$m\angle 12 = m\angle 9$, as they are adjacent angles

C. $m\angle 3 = m\angle 4$, as they are adjacent angles

$m\angle 4 = m\angle 2$, as they are supplementary angles

$m\angle 2 = m\angle 9$, as they are alternate interior angles

D. $m\angle 3 = m\angle 2$, as they are vertical angles

$m\angle 2 = m\angle 16$, as they are alternate interior angles

$m\angle 16 = m\angle 9$, as they are corresponding angles

2. Melissa drew a figure on the coordinate grid below. If the figure is reflected across the *y*-axis, what will be the new coordinates of point *A*?

A. $(-5, -9)$

B. $(-5, 9)$

C. $(5, -9)$

D. $(5, 9)$
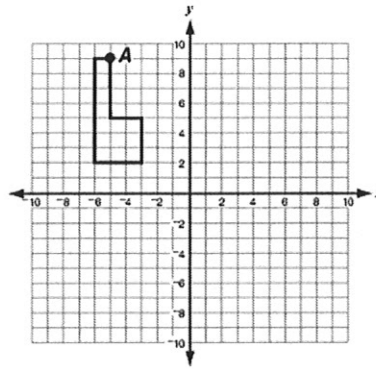
3. The coordinate grid shows the location of a floral design and point *A*. Which sequence of transformations would move the floral design into the same quadrant as point *A*?

A. Translate left 5 units. Reflect over the *x*-axis.
B. Translate left 5 units. Reflect over the *y*-axis.
C. Translate right 5 units. Reflect over the *x*-axis.
D. Translate right 5 units. Reflect over the *y*-axis.
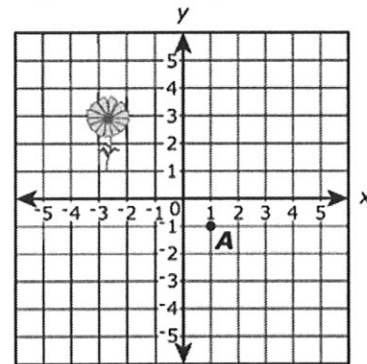
4. To move from Figure 1 to Figure 2, a student translated Figure 1 10 units right and reflected it over the *x*-axis, as shown in the coordinate grid below. The student wanted to change the transformation shown in the coordinate grid so that Figure 1 and Figure 2 were farther apart. Which series of transformations would allow for this change?

A. After translating Figure 1 10 units right, translate 3 units up.
B. After translating Figure 1 10 units right, reflect over the *y*-axis.

C. After translating Figure 1 10 units right, reflect over a horizontal line 1 unit above the *x*-axis.
D. After translating Figure 1 10 units right, reflect over a horizontal line 1 unit below the *x*-axis.
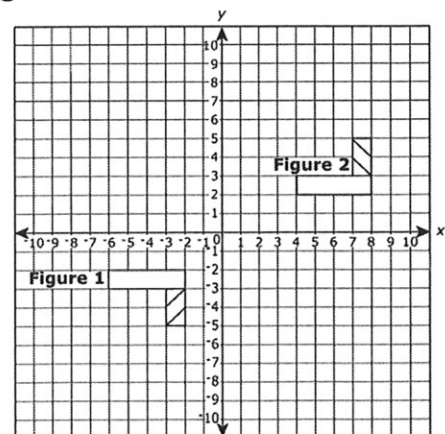
5. Triangle *ABC* is transformed to create triangle *A'B'C'*. Which sequence created triangle *A'B'C'*?

A. A reflection across the *y*-axis and then a translation up 4 units.

B. A reflection across the *x*-axis and then a reflection across the y-axis.

C. A translation up 4 units and then a 90° clockwise rotation about the origin.

D. A reflection across the *x*-axis and then a 90° clockwise rotation about the origin.
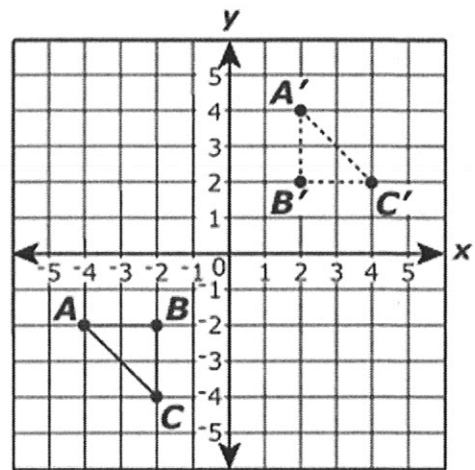
6. The coordinate grid shows the location of Carla's home at point A and the location of the closest movie theater at point B. Which whole number is the closest approximation for the shortest distance between Carla's home and the movie theater?

A. 12 units

B. 9 units

C. 8 units

D. 7 units
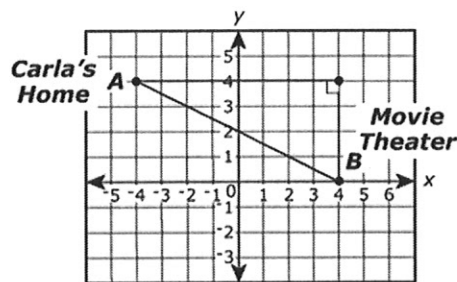
7. Ben and David plot the locations of their houses and the park on the grid shown below. They are planning to each start at home and travel in a straight line to the park. How many times greater is the distance Ben travels to get to the park than the distance David travels?

A. 1.2

B. 1.4

C. 2

D. 5
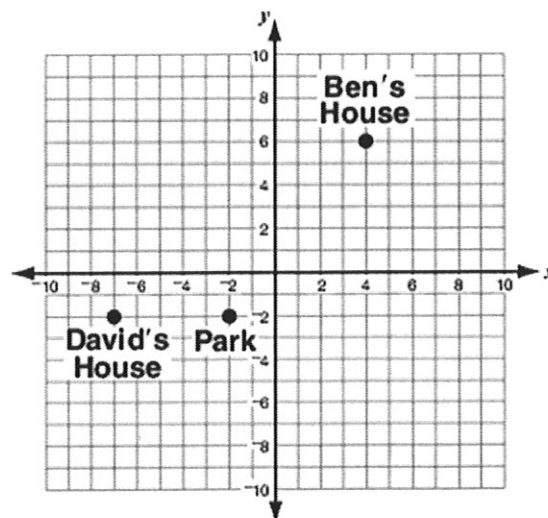
8. The diagram shows a right triangle with the length of one side missing. Which measure is the value of the missing side length?

A. 16 units
B. 24 units
C. 28 units
D. 36 units

26 units

10 units

?
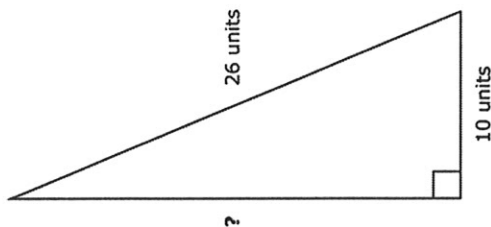
9. On an adult baseball field, the distance from each base to the center of the field is approximately 64 feet. On a children's baseball field, the distance from each base to the center of the field is approximately 21 feet shorter than the corresponding distance on the adult baseball field. Which approximation is closest to the distance **between the bases** on a children's baseball field?

A. 43 feet
B. 61 feet

C. 70 feet
D. 86 feet

64 feet

64 feet
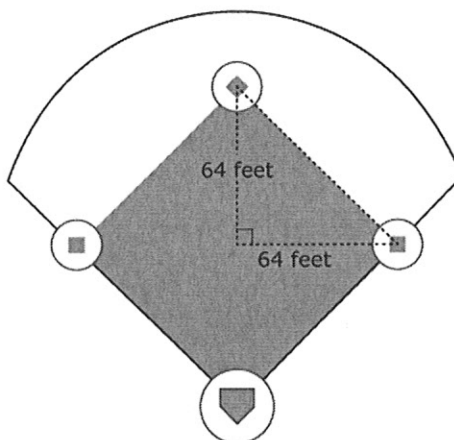
10. A smaller square, with side length c, is inscribed in a larger square as shown in the figure below. Which equation can be simplified to prove the Pythagorean theorem?

A. $(a+b)^2 = c^2 - 2ab$

B. $(a+b)^2 = c^2 - 4ab$

C. $(a+b)^2 = c^2 + 2ab$
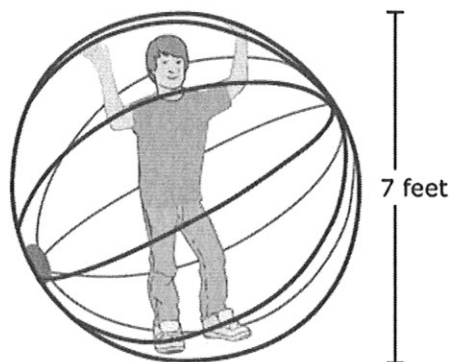
D. $(a+b)^2 = c^2 + 4ab$
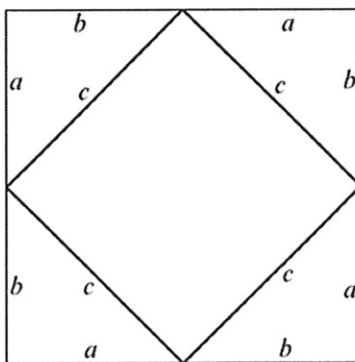
11. The height of a cylindrical jar is twice the radius. When the radius of the jar is represented by x, which algebraic expression would represent the volume?

    A. $2\pi x^3$
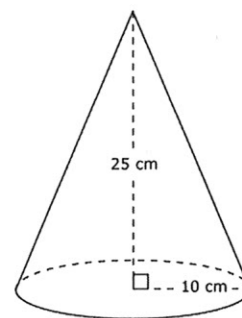   B. $3\pi x^2$
    C. $4\pi x^3$
    D. $4\pi x^3$

12. Albert rented a human sphere to use for entertainment at the school picnic. Which measure is closest to the volume of the sphere?

    A.   44 ft^3
    B.   51 ft^3
    C.   88 ft^3
    D.   180 ft^3

7 feet

13. What is the best approximation for the volume of the cone?

    A. **524 cm^3**
    B. **654 cm^3**
    C. **2,618 cm^3**
    D. **6,545 cm^3**

25 cm

10 cm

14. Jack is making 4 cylindrical wax candles. If he plans to make candles with a diameter of 7 cm and a height of 12 cm, approximately how many cubic centimeters of wax will Jack need to make the candles?

    A. 7,389
    B. 6,333
    C. 3,167
    D. 1,847

15. A company is going to redesign the cylindrical container it uses to market its product. The volume of the proposed container will be approximately 42.4 cubic inches and the diameter will be 3 inches. What will be the approximate height of the cylinder, rounded to the nearest tenth of an inch?

    A. 1.5 inches   C. 6.0 inches
    B. 4.5 inches   D. 9.0 inches

Math 8 *(Swanick)*
PSSA Review: Domain 5

(SchoolNet: PSSA18D5)

Name: _____ Date: _____ Period: _____

1. _____ 2. _____ 3. _____ 4. _____ 5. _____

6. _____ 7. _____ 8. _____ 9. _____ 10. _____

11. _____ 12. _____ 13. _____ 14. _____ 15. _____

8th Grade PSSA Math Rev (Domain 5)

1. A man used a faucet to add water to a pond. The man used the equation $v=3,208m+6,000$ to determine the volume, v, of the pond in milliliters after he had added water for m minutes. What is the meaning of the y-intercept of this equation?

   A. The volume of the pond increases by 3,028 milliliters each minute.
   B. The volume of the pond increases by 6,000 milliliters each minute.
   C. The volume of the pond was 3,028 milliliters before the water was added.
   D. The volume of the pond was 6,000 milliliters before the water was added.

2. Which scatter plot shows a nonlinear association between the two quantities?
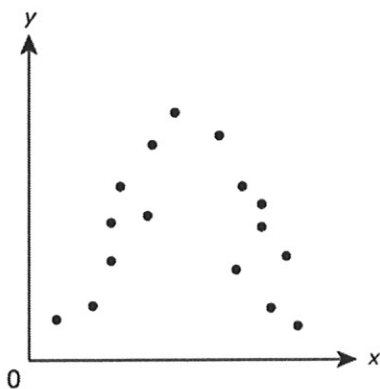
   A.
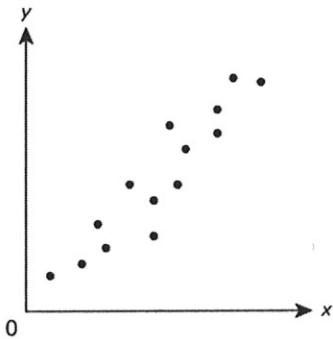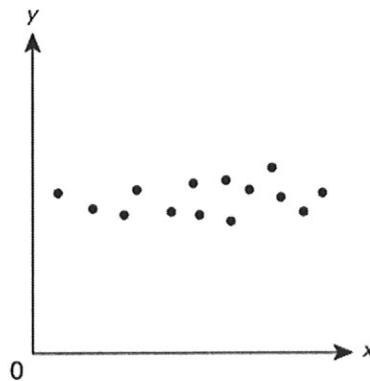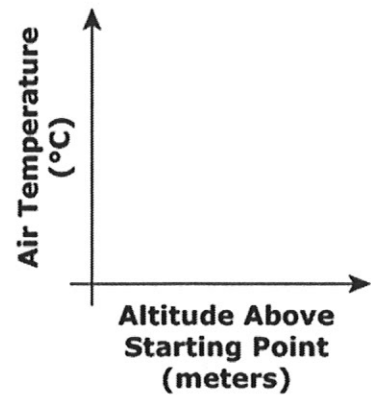

   B.
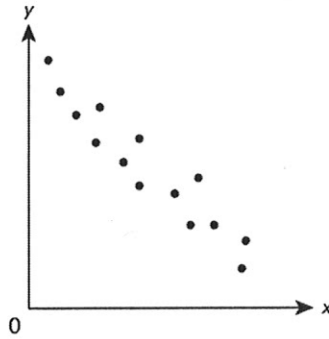
   C.

   D.

3. Three mountain climbers started climbing a mountain at the same time and place. The climbers stopped at different points to record their increasing altitude and the decrease in the air temperature. When all three climbers reached the top of the mountain, they plotted their data on the set of axes shown.

Which type of correlation should their data have?

A. undefined correlation

B. negative correlation

C. positive correlation

D. zero correlation

Air Temperature (°C)

Altitude Above Starting Point (meters)

4. A car rental business charges a daily fee along with a one-time fixed charge to refuel the car when it is returned. The equation the business uses to calculate the total rental cost, c, is $c = 15d + 24$, where d represents the number of rental days. What is the daily increase in the total cost of the rental?

A. $9

B. $15

C. $24

D. $39

5. When t is the time in hours, the equation $d = 2t + 8$ gives the total accumulated snow depth, d, in inches during a storm. Using this equation, how much snow will be added with each hour?

A. 1 inch

B. 2 inches

C. 8 inches

D. 10 inches

6. The equation for the height of a burning candle is $h = -\frac{1}{5}t + 10$ where h represents the candle's height in centimeters after elapsed time, t, in minutes. Which equation represents the height of a second burning candle that is 5 centimeters taller than the first candle?

A. $h = -\frac{1}{5}t + 5$

B. $h = -t + 15$

C. $h = -\frac{1}{5}t + 15$

D. $h = -t + 10$

7. A scientist recorded the weight of an insect from hatching to maturity. The equation $w = 0.7a + 1.2$ gives the insect's weight, w, in grams at age a, in weeks. What is the meaning of the slope of this equation?

    A. The weight of the insect increases 1.2 grams each week.

    B. The weight of the insect increases 0.7 grams each week.

    C. The weight of the insect is 1.2 grams when it hatches.

    D. The weight of the insect is 0.7 grams when it hatches.

8. A farmer has two apple orchards.

- Orchard L has 2,500 trees.
- Orchard M has one-fourth as many trees as Orchard L.
- The farmer adds 1,100 trees to both orchards each year.

Which equation gives the total number of trees, t, in Orchard M after n years?

    A. $t = 1, 100n + 625$

    B. $t = 1, 100n + 2,500$

    C. $t = 275n + 625$

    D. $t = 275n + 2,500$

9. The figure below shows a scatter plot. Which linear equation **best** represents the data in the scatter plot?

    A. $y = -8x + 0.5$

    B. $y = -0.5x - 8$

    C. $y = -0.5x + 8$

    D. $y = -x + 8.5$
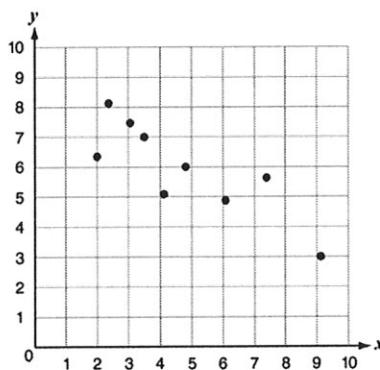
10. An employee's weekly salary can be calculated using the linear model $y = 0.25x + 225.23$ where x represents the employee's sales, in dollars. How much does the employee make if he or she does NOT sell any clothes during the week?

    A. $0.00

    B. $0.25

    C. $225.23

    D. $225.48

11. Hector tracked the number of weeks different genres of movies were shown at the local theater. He recorded the data in the table below. Which statement is **best** supported by the table?

	Fewer than 5 Weeks	5–10 Weeks	More than 10 Weeks
Comedy	3	5	6
Drama	2	4	2
Action	3	2	3
Other	5	1	0

A. A comedy is more likely to be shown for 5–10 weeks than a drama.

B. An action film is more likely to be shown for fewer than 5 weeks than a comedy.

C. A movie shown at the theater is more likely to be an action film than a drama.

D. A movie shown at the theater will most likely be shown for more than 10 weeks.

12. Which relationship between x and y in the scatter plots below could be **best** represented with a linear model?
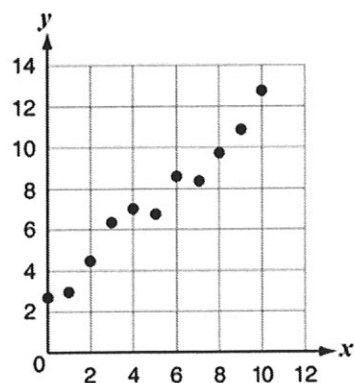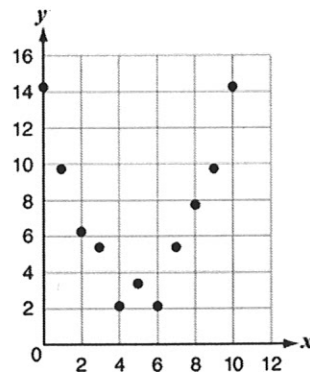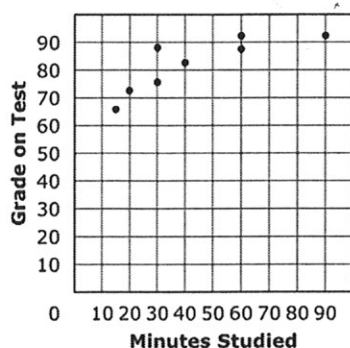
A.
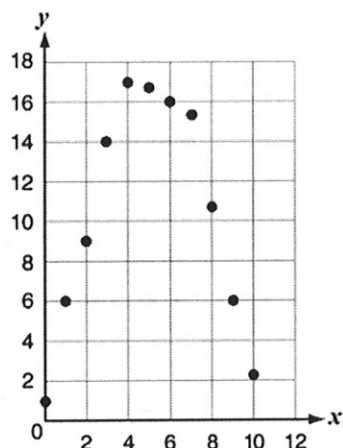
B.
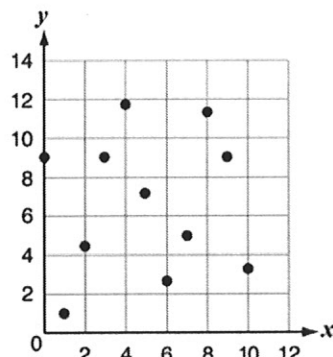
C.

D.

13. Brandon asked eight friends approximately how long they studied for the last test and what grade they received. The results are shown in this scatter plot. Which equation is the closest approximation of the line of best fit for this set of data?

A. $y = \frac{1}{3}x + 28$

B. $y = \frac{1}{3}x + 68$

C. $y = 3x + 68$

D. $y = 3x + 28$

14. The harvest results of a farm are shown in the graph below. Which equation best models the relationship between the amount of compost used, x, and the harvest yield, y?

A. $y = x$

B. $y = 200x$

C. $y = x + 200$

D. $y = 200x + 200$
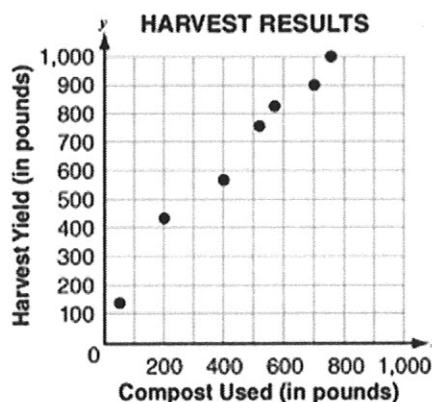
15. Cho surveyed 20 classmates to find out how much time they spent studying for their math final exam. He also asked them how much time they used to complete the exam. The data table below shows the results of Cho's survey. Based on the information in Cho's data table, which statement must be true?

	Time Used to Complete Exam (in minutes)				
Time Spent Studying for Exam (in minutes)	1-30	31-60	61-90	91-120	Total
1-30	0	0	3	3	6
31-60	1	5	1	0	7
61-90	2	5	0	0	7
Total	3	10	4	3	20

A. Students who studied for more than an hour took less than 1 hour to complete the exam.

B. Students who studied for less than 1 hour took more than an hour to complete the exam.

C. Most students took more than an hour to complete the exam.

D. Most students studied for more than an hour.