

GRADE 8 MTH

2020 8th Grade Math State Test Review

Yonkers City School District

Student Name: _____

Teacher Name: _____

- 1 In each table, x represents the input value and y represents the output value. Which table does **not** represent a function of x ?

A

x	y
0	0
1	1
2	2
3	3

B

x	y
3	0
2	1
1	2
0	3

C

x	y
0	3
1	3
2	3
3	3

D

x	y
3	0
3	1
3	2
3	3

- 2 City X has a population of 3×10^5 and City Y has a population of 6×10^6 . Which statement correctly describes the relationship between the populations of City X and City Y?

- A** The population of City Y is 2 times the population of City X.
- B** The population of City Y is 20 times the population of City X.
- C** The population of City X is 300,000 less than the population of City Y.
- D** The population of City X is 3,000,000 less than the population of City Y.

- 3** A system of equations is shown below.

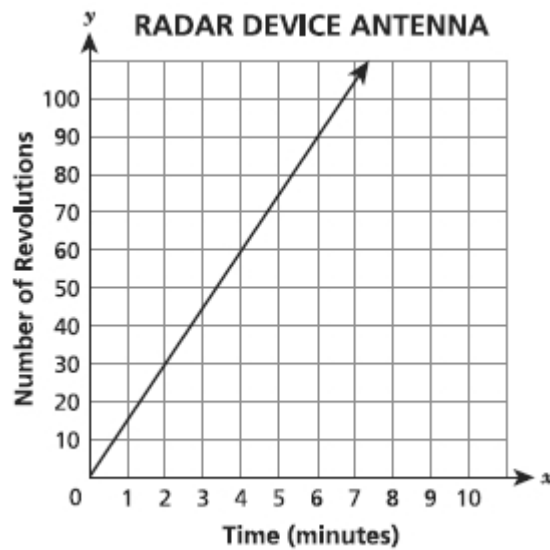
$$5x + 2y = -15$$

$$2x - 2y = -6$$

What is the solution to the system of equations?

- A** (-3,0)
- B** (0,-3)
- C** (-3,6)
- D** (6,-3)

- 4 A radar device has an antenna that revolves at a constant rate. The graph shows the number of revolutions the device will make over time.



Which table shows the data for an antenna that revolves at exactly twice the rate of the antenna described in the graph?

A ANTENNA #1

Time (minutes)	Number of Revolutions
15	315
30	660

B ANTENNA #2

Time (minutes)	Number of Revolutions
18	450
36	900

C ANTENNA #3

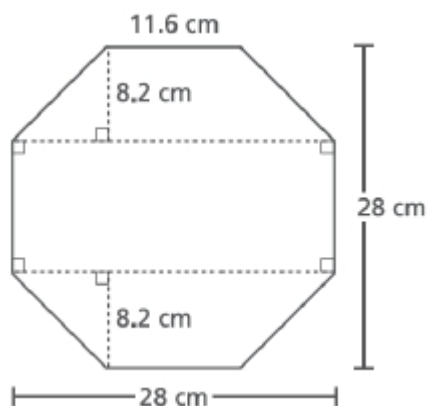
Time (minutes)	Number of Revolutions
20	40
25	50

D ANTENNA #4

Time (minutes)	Number of Revolutions
22	660

24	720
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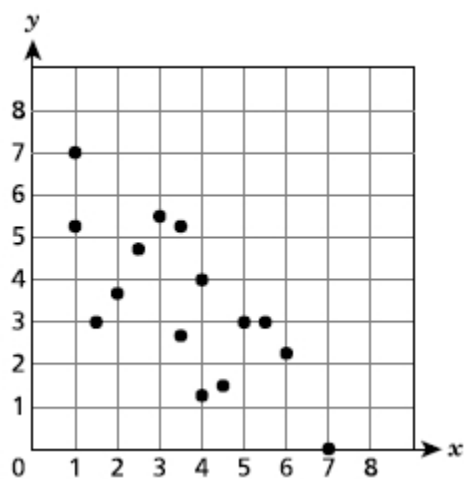
- 5 The octagon shown below has eight congruent sides. The given measures of the octagon are rounded to the nearest tenth of a centimeter.



What is the area, to the nearest square centimeter, of the octagon?

- A 392
- B 487
- C 650
- D 720

- 6 A set of data is represented on the scatter plot below.



Which equation **best** models the set of data?

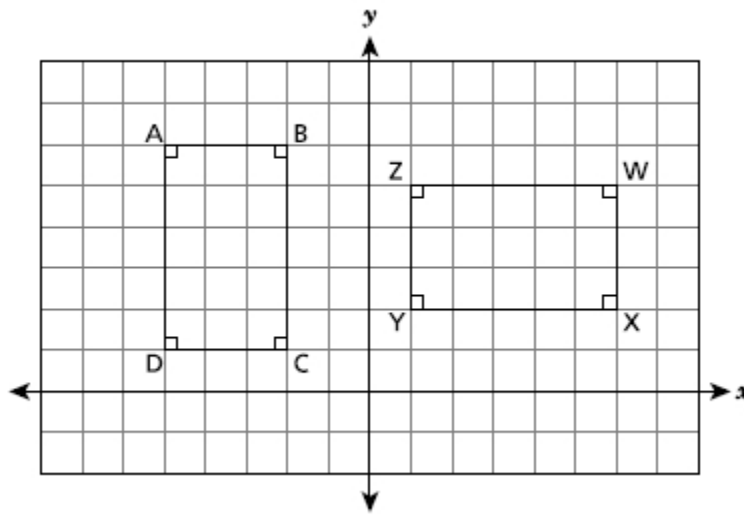
A $y = -\frac{3}{4}x + 6$

B $y = \frac{3}{4}x - 6$

C $y = -6x + \frac{3}{4}$

D $y = -6x - \frac{3}{4}$

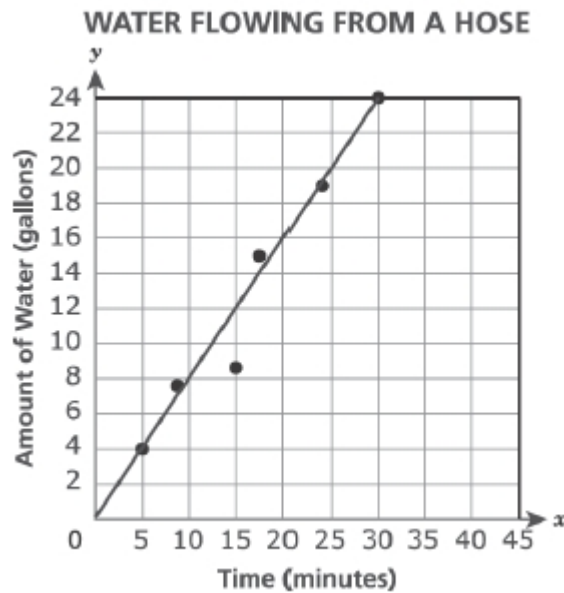
- 7 On the coordinate plane below, rectangle ABCD is rotated 90° clockwise about the origin to form rectangle WXYZ.



Which statement about the relationship between rectangle ABCD and rectangle WXYZ is true?

- A $\overline{DA} \cong \overline{YZ}$
 B $\overline{DC} \cong \overline{XY}$
 C $\overline{BC} \cong \overline{YZ}$
 D $\overline{AB} \cong \overline{WX}$
- 8 Which set of ordered pairs (x, y) could represent a linear function of x ?
- A $\{(-2, 8), (0, 4), (2, 3), (4, 2)\}$
 B $\{(1, 2), (1, 3), (1, 4), (1, 5)\}$
 C $\{(-2, 7), (0, 12), (2, 17), (4, 22)\}$
 D $\{(3, 5), (4, 7), (3, 9), (5, 11)\}$
- 9 Which set of angle measures could be the interior angles of a triangle?
- A $90^\circ, 90^\circ, 90^\circ$
 B $80^\circ, 80^\circ, 80^\circ$
 C $40^\circ, 50^\circ, 60^\circ$
 D $15^\circ, 30^\circ, 135^\circ$

- 10 The scatter plot below can be used to find the approximate rate at which water flows through a garden hose. The line of best fit for the scatter plot can be described by the equation $y = \frac{4}{5}x$.



If the rate, in gallons per minute, continues, approximately how many gallons of water will flow from the hose in 45 minutes?

- A 24
- B 36
- C 39
- D 56

- 11 Functions W and Z are both linear functions of x .

Function W

$$y = -\frac{1}{16}x + 30$$

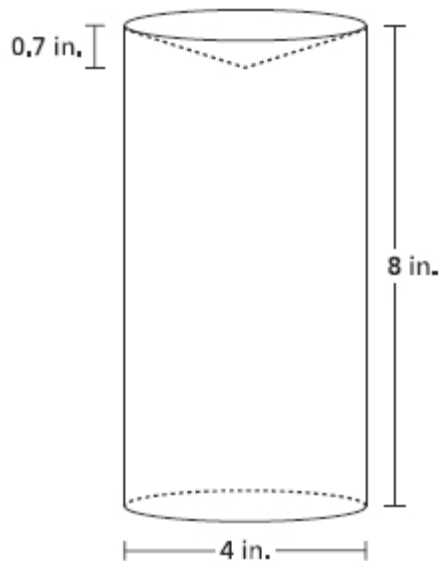
Function Z

x	0	1	2	3
y	15.8	15.76	15.72	15.68

Which statement comparing the functions is true?

- A The slope of Function W is equal to the slope of Function Z.
 - B The slope of Function W is less than the slope of Function Z.
 - C The y -intercept of Function W is equal to the y -intercept of Function Z.
 - D The y -intercept of Function W is less than the y -intercept of Function Z.
- 12 On a coordinate plane, vertex A for triangle ABC is located at (6,4). Triangle ABC is dilated by a scale factor of 0.5 with the center of dilation at the origin. The resulting image is triangle A'B'C'. What are the coordinates of vertex A'?
- A (3,2)
 - B (12,8)
 - C (5.5, 3.5)
 - D (6.5,4.5)
- 13 Triangle BCD is rotated 180° clockwise and then dilated by a factor of 4 centered at the origin. The resulting image is triangle B'C'D'. Which statement about the two triangles is true?
- A The area of $\triangle BCD$ is 4 times the area of $\triangle B'C'D'$.
 - B The perimeter of $\triangle BCD$ is 4 times the perimeter of $\triangle B'C'D'$.
 - C The corresponding sides of $\triangle BCD$ and $\triangle B'C'D'$ are congruent.
 - D The corresponding angles of $\triangle BCD$ and $\triangle B'C'D'$ are congruent.

- 14** At a local basketball game, all tickets are the same price and all souvenirs are the same price. Mr. Smith bought 2 tickets to this basketball game and 1 souvenir for a total of \$17.25. Ms. Lockhart bought 5 tickets to the same game and 2 souvenirs for a total of \$42.00. How much was a ticket to this game?
- A** \$2.25
B \$7.50
C \$8.50
D \$9.75
- 15** The object below is made of solid plastic. It is a cylinder with an indentation at the top in the shape of a cone.



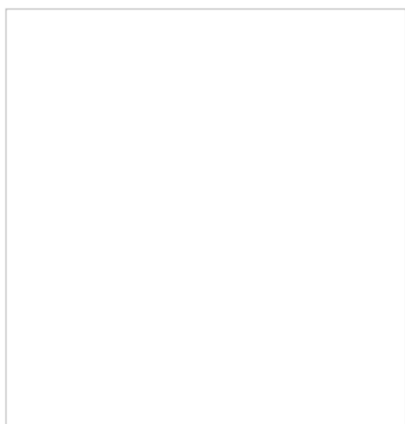
What is the volume, to the nearest tenth of a cubic inch, of the plastic object?

- A** 103.5
B 100.4
C 97.6
D 91.7

16 Which function of x has the **least** value for the y -intercept?

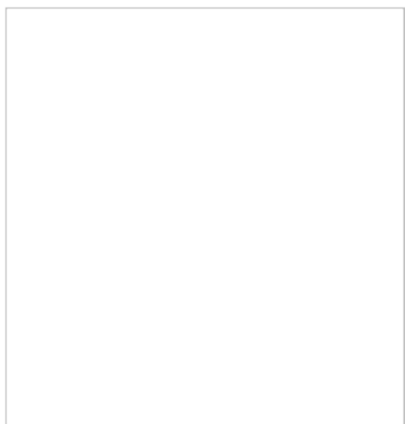
A $y = -4x + 15$

B

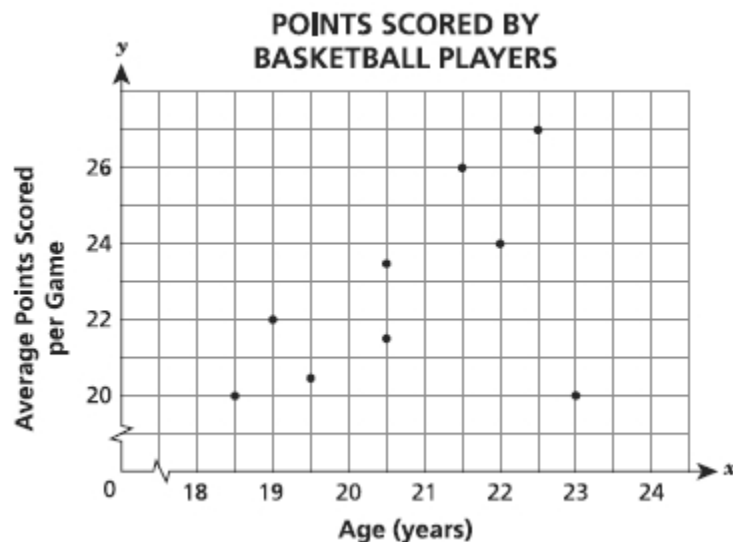


C $y = 2x - 3$

D



- 17 The scatter plot below shows the average points scored per game by players of different ages in an adult basketball league.



Which statement **best** describes the association between a player's age, in years, and the average points scored per game?

- A There is no association.
 - B There is a nonlinear association.
 - C There is a positive linear association and one outlier.
 - D There is a negative linear association and one outlier.
- 18 In city W, the average cost for a gym membership is given by the equation $y = 34.99x + 49$, where y is the total cost, in dollars, for x months of membership. What is the meaning of the y -value when $x = 1$?
- A the average sign-up fee for a gym membership
 - B the average monthly charge for a gym membership
 - C the average total cost for the first month of a gym membership
 - D the average total cost for the first two months of a gym membership

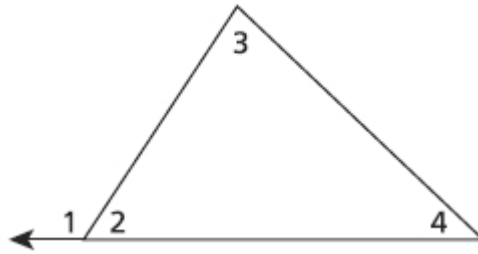
- 19 What is the volume, in terms of π , for a cylindrical container with a radius of 3.25 centimeters and a height of 10 centimeters?
- A $65\pi\text{cm}^3$
- B $105.625\pi\text{cm}^3$
- C $331.83\pi\text{cm}^3$
- D $422.5\pi\text{cm}^3$
- 20 Kevin and Christy both saved money for their class trip. Kevin saved the same amount each week. The total amount that Kevin saved at the end of every two weeks is shown in the table below.

KEVIN'S SAVINGS

Time (weeks)	Total Amount Saved
2	\$46
4	\$92
6	\$138

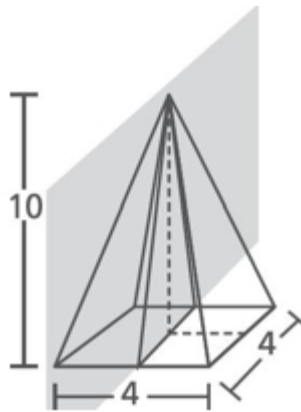
- Christy's savings can be modeled by the equation $y = 26x$, where y is the total amount of money saved in x weeks. Which statement correctly compares the rates at which Kevin and Christy saved money?
- A Christy saved \$3 per week more than Kevin.
- B Kevin saved \$10 per week more than Christy.
- C Christy saved \$18 per week more than Kevin.
- D Kevin saved \$20 per week more than Christy.
- 21 The points $(4, 1)$ and $(x, -6)$ lie on the same line. If the slope of the line is 1, what is the value of x ?
- A $x = -3$
- B $x = 3$
- C $x = 9$
- D $x = 11$

- 22 Mya claims $(m\angle 3 + m\angle 4) = m\angle 1$, as shown in the triangle below.



Which equations explain why Mya's claim must be true?

- A $(m\angle 1 + m\angle 2) = 90^\circ$ and $(m\angle 3 + m\angle 4) = 90^\circ$
 - B $(m\angle 1 + m\angle 2) = 180^\circ$ and $(m\angle 3 + m\angle 4) = 180^\circ$
 - C $(m\angle 1 + m\angle 2) = 90^\circ$ and $(m\angle 3 + m\angle 4 + m\angle 2) = 90^\circ$
 - D $(m\angle 1 + m\angle 2) = 180^\circ$ and $(m\angle 3 + m\angle 4 + m\angle 2) = 180^\circ$
- 23 The dimensions of a square right pyramid are shown below.



The pyramid is sliced by a plane that passes vertically through the top vertex and is perpendicular to the base. What is the resulting two-dimensional shape and the area of the plane section?

- A a triangle with an area of 20 square units
- B a triangle with an area of 40 square units
- C a rectangle with an area of 16 square units
- D a rectangle with an area of 40 square units

- 24** A newspaper conducted a survey to find out how many high school students play video games. The two-way table below displays the data from the survey.

VIDEO GAME SURVEY			
	Boys	Girls	Total
Do Play Video Games	1,593	1,361	2,954
Do Not Play Video Games	858	1,635	2,493
Total	2,451	2,996	5,447

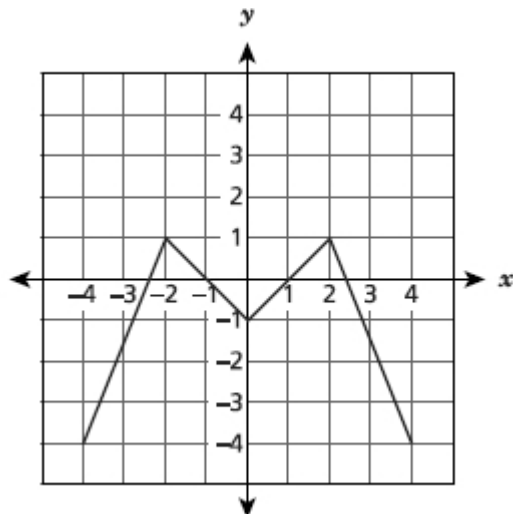
Based on these data in the table, which statement is true?

- A** There were 2,451 boys surveyed, and about 29% of them play video games.
- B** There were 2,996 girls surveyed, and about 45% of them play video games.
- C** There were 5,447 students surveyed, and about 54% of them do not play video games.
- D** There were 2,493 students surveyed, and about 34% of them are girls who do not play video games.
- 25** Two cells are viewed and measured under a microscope. The approximate diameter of each cell is listed below.
- cell P: 5.0×10^{-4} meters
 - cell Q: 3.0×10^{-5} meters

What is the approximate difference, in meters, between the diameter of cell P and the diameter of cell Q?

- A** 2.0×10^{-5}
- B** 2.0×10^{-4}
- C** 4.7×10^{-5}
- D** 4.7×10^{-4}

- 26 A function of x is shown on the coordinate plane.



Over which intervals is the function increasing?

- A $-4 < x < -2$ and $-1 < x < 1$
- B $-4 < x < -2$ and $0 < x < 2$
- C $-2 < x < 0$ and $2 < x < 4$
- D $-2 < x < -1$ and $2 < x < 4$