TAKS
Texas Assessment of Knowledge and Skills

MATHEMATICS
Grade 10

2008 Released Items

1 Which of the following does not represent a function?

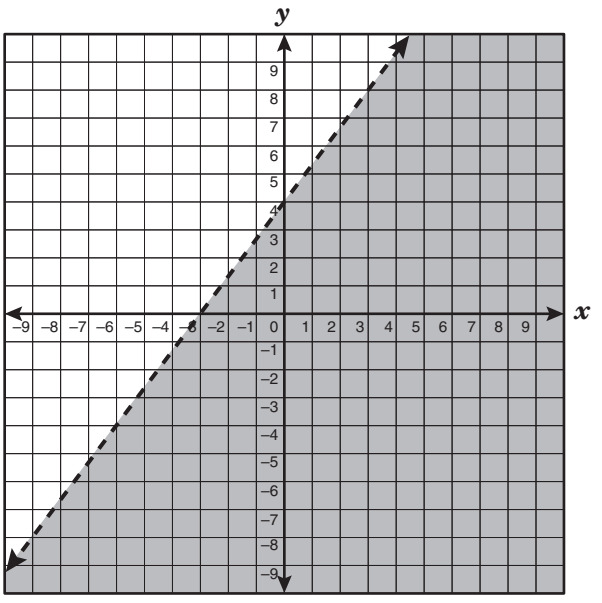
A $\{(-3, 9), (-1, 1), (1, 1), (3, 9)\}$

B $\{(-4, 2), (-1, 2), (0, 2), (5, 2)\}$

C $\{(-6, -5), (-4, 0), (-1, 3), (1, -3)\}$

D $\{(-2, 4), (-2, -3), (0, -5), (1, -7)\}$

2 Which inequality best represents the graph shown below?



A $-3x + 2y < -8$

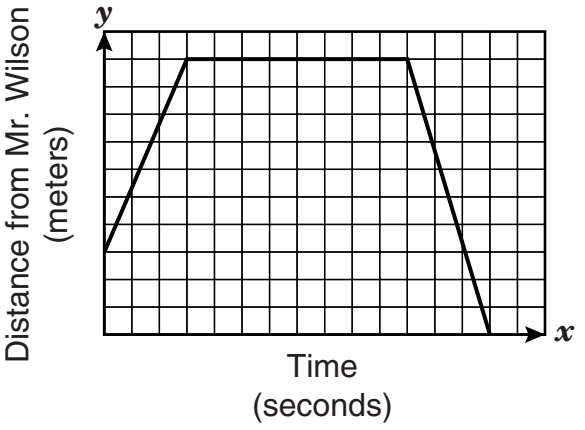
B $3x - 2y < -8$

C $-4x + 3y > -12$

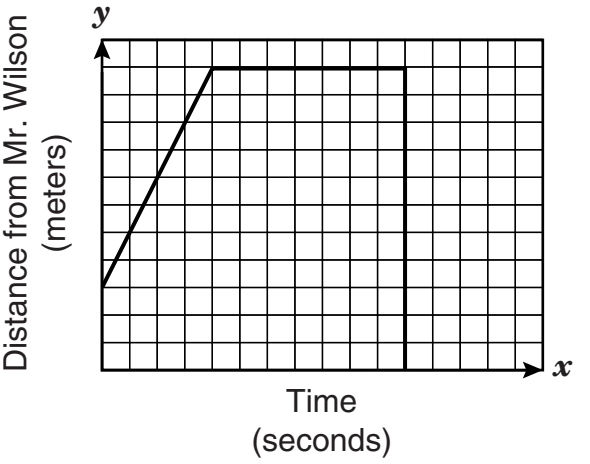
D $4x - 3y > -12$

3 Mr. Wilson asked his class to sketch a graph that would represent the following activity: "Start 3 meters away from me and slowly walk away for 8 seconds. Then stand still for 3 seconds and walk quickly toward me for 4 seconds." Which graph best represents this activity?

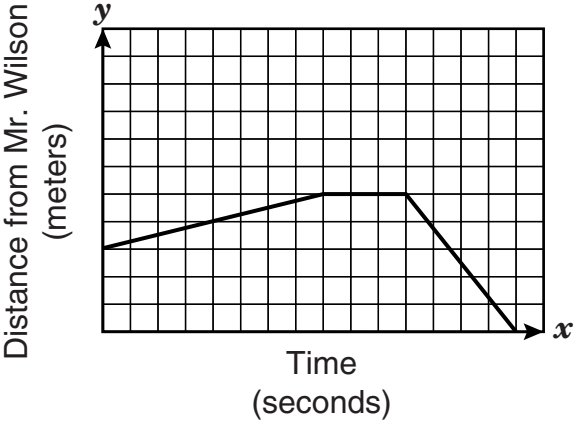
A



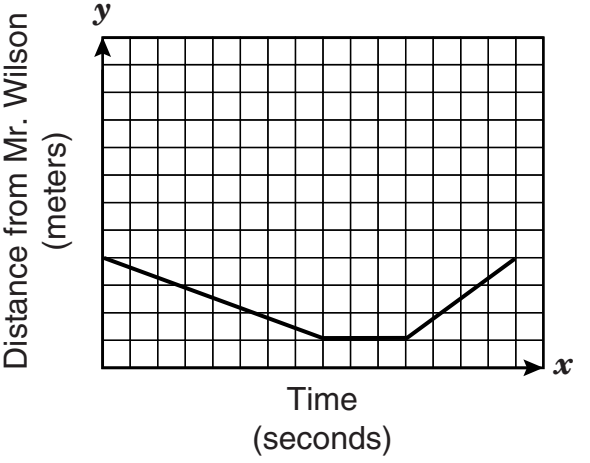
C



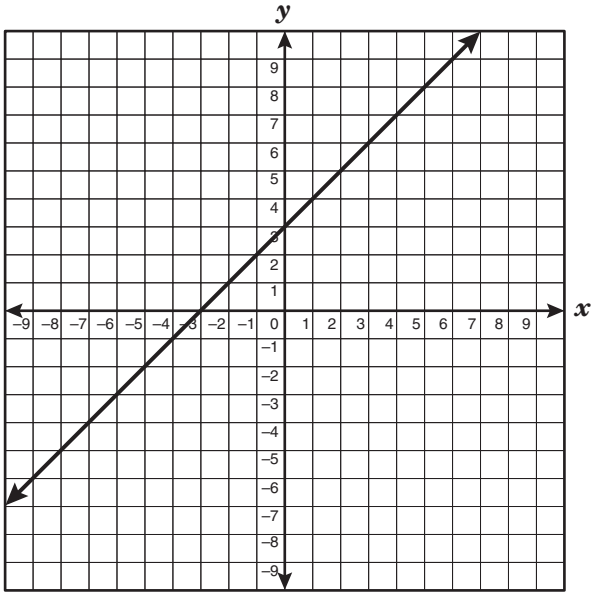
B



D



1 The graph of the function $y = x + 3$ is shown below on the coordinate grid.



What is the range of the function when the domain is less than or equal to 2?

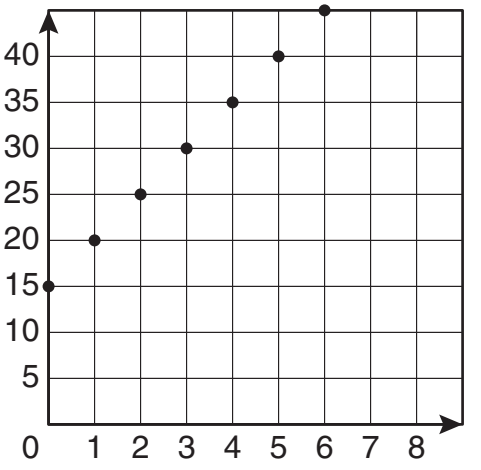
A The range is ≥ 2.

B The range is ≤ 5.

C The range is ≤ 3.

D The range is < 5.

2 Which situation best describes the graph shown below?



A There are 15 members in the math club, and each one contributes \$5.

B The current value of a certain baseball card is \$15, and the value increases each year by 5%.

C A store charges \$15 to rent a DVD player plus \$5 for each DVD movie rented.

D Jocelyn is 15 miles from home and jogs back home at a rate of 5 miles per hour.

3 Stephanie opened a checking account with a \$223 deposit. Each month she earns \$85 tutoring math, of which she spends \$42 per month. She deposits the rest of her earnings into her checking account. Which expression best represents how much money Stephanie should have in her checking account after m months?

A $223 + (85 - 42)m$

B $223 + 42m$

C $223 + 85m$

D $223 + 85m - 42$

4 Simplify the algebraic expression $-3(x + 1)(x - 4) + 2(4x^2 - 6x - 9)$.

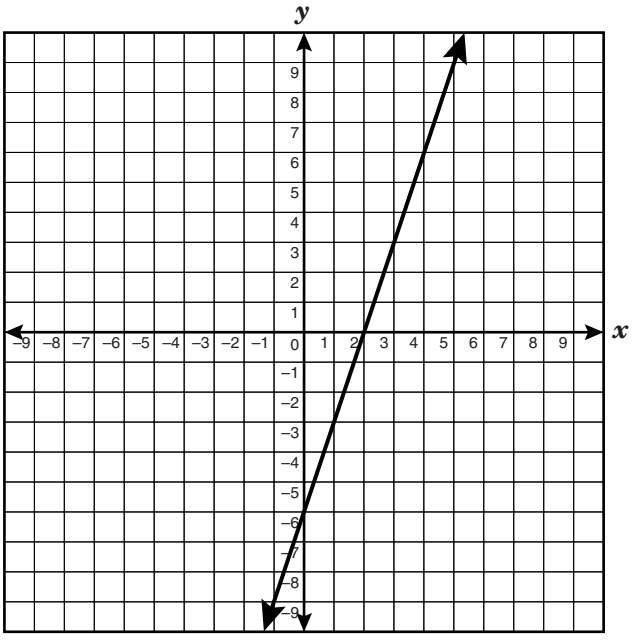
A $5x^2 - 3x - 6$

B $5x^2 - 21x - 30$

C $11x^2 - 3x - 6$

D $11x^2 - 21x - 30$

1 Which equation best represents the line graphed below?



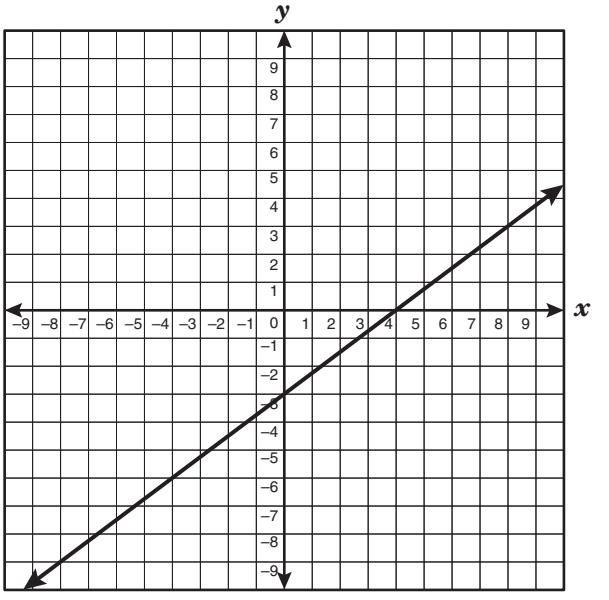
A $-2x + y = 6$

B $3x - y = 6$

C $x - 3y = -6$

D $-3x + 3y = -6$

2 Which best describes the effect on the x-intercept of the graph of $f(x) = \frac{3}{4}x - 3$ if the slope is changed to $-\frac{3}{4}$?



A The x-intercept remains the same, and the new line is translated upward.

B The x-intercept becomes negative, and the new line is parallel to the original line.

C The x-intercept remains the same, and the new line is translated downward.

D The x-intercept becomes negative, and the new line intersects the original line.

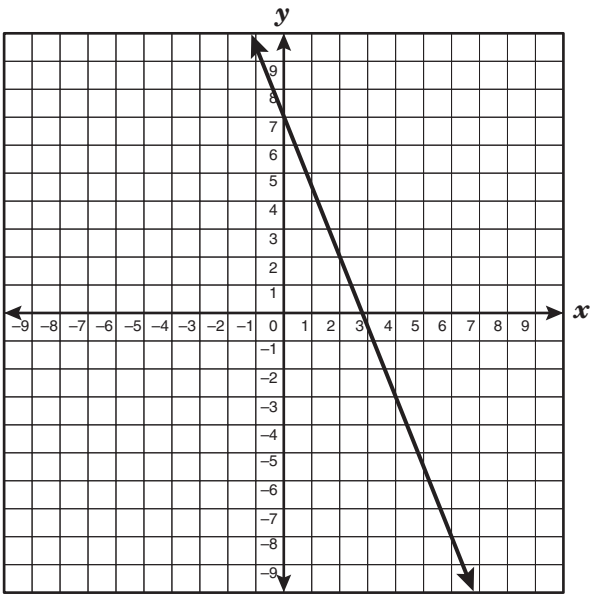
3 Look at the table below.

x	y
12	216
15	270
17	306
24	432

If y varies directly with x, what is the constant of variation?

Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

1 The graph of the linear equation $y = -\frac{5}{2}x + 7$ is shown below.



Which coordinate pair is in the solution set of $y < -\frac{5}{2}x + 7$?

A (4, –3)

B (1, 2)

C (5, 6)

D (0, 7)

2 The state of Texas has a sales tax rate of 6.25% for all taxable items. Cities in Texas can collect up to an additional 2% sales tax on taxable items. If a customer purchased $1080 in merchandise, $225 of which is not taxable, what is a reasonable range for the combined state and city taxes for this purchase?

A $14 to $19

B $17 to $53

C $53 to $71

D $67 to $90

3 Speedy Delivery Services delivers its standard crates using a fleet of vans and trucks. A van can hold up to 20 standard crates, and a truck can hold up to 35 standard crates. If Speedy Delivery Services needs to deliver exactly 270 standard crates at one time using 12 full vehicles, which system of linear equations could be used to determine the number of vans, x, and the number of trucks, y, needed for this delivery?

A $x + y = 270$
$20x + 35y = 12$

B $x + y = 12$
$35x + 20y = 270$

C $x + y = 12$
$20x + 35y = 270$

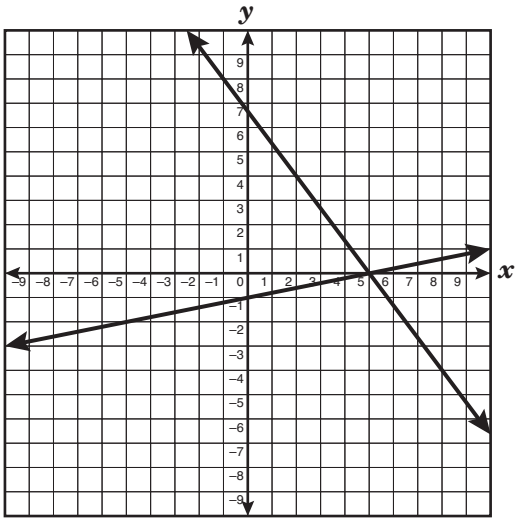
D $x + y = 270$
$35x + 20y = 12$

4 Which of the following graphs best represents the solution to the system of linear equations shown below?

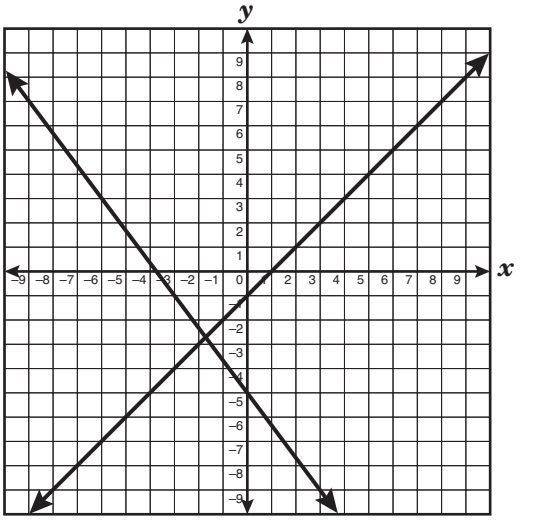
$$x + 5y = -5$$

$$4x - 3y = -20$$

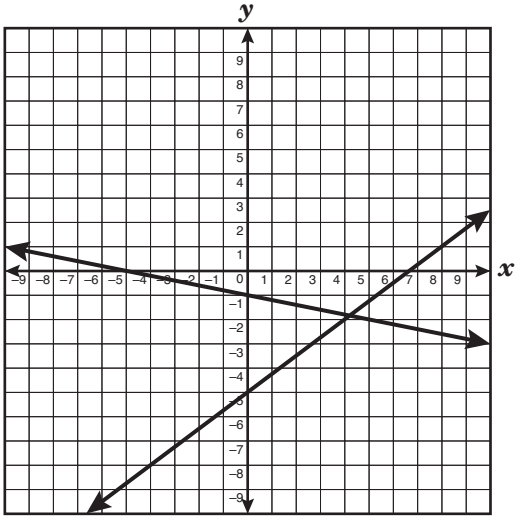
A



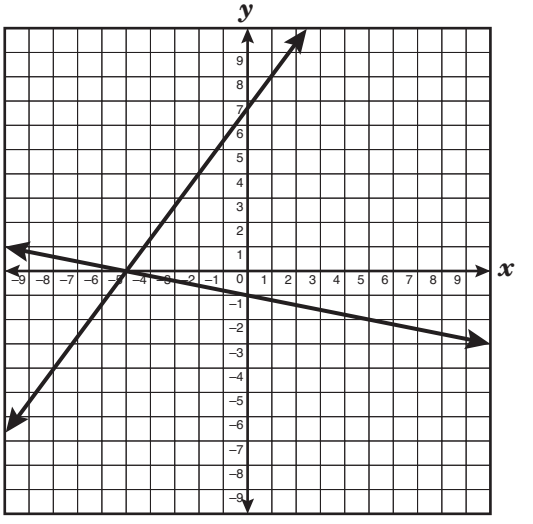
C



B



D



1 What is the effect on the graph of the equation $y = x^2 - 2.5$ when the equation is changed to $y = x^2 + 2.5$?

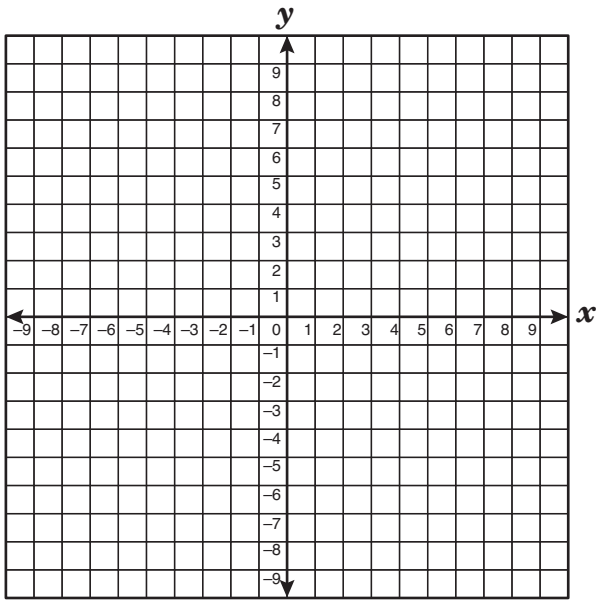
A The graph of $y = x^2 + 2.5$ is a reflection of $y = x^2 - 2.5$ across the x-axis.

B The graph of $y = x^2 + 2.5$ is a translation of the graph of $y = x^2 - 2.5$.

C The graph of $y = x^2 + 2.5$ is a reflection of $y = x^2 - 2.5$ across the y-axis.

D The graph of $y = x^2 + 2.5$ is a dilation of the graph of $y = x^2 - 2.5$.

2 Which of the following is the vertex of the graph of $y = 3x^2 - 8x + 4$?



A $(\frac{4}{3}, -\frac{4}{3})$

B $(\frac{1}{2}, 0)$

C $(0, 4)$

D $(\frac{2}{3}, 2)$

3 What are the solutions to the quadratic equation $2n^2 = 5n + 7$?

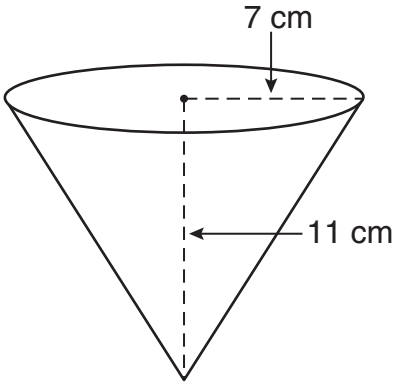
A $n = -3.5$ and $n = -1$

B $n = -1$ and $n = 3.5$

C $n = 3.5$ and $n = 1$

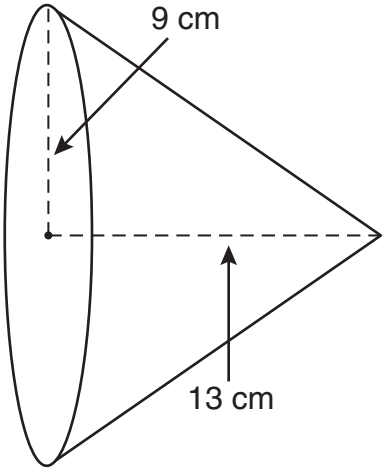
D $n = 1$ and $n = -3.5$

1 Look at the cone shown below.

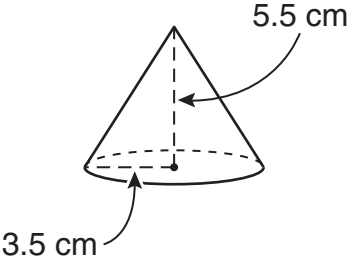


Which of the following cones is similar to the one above?

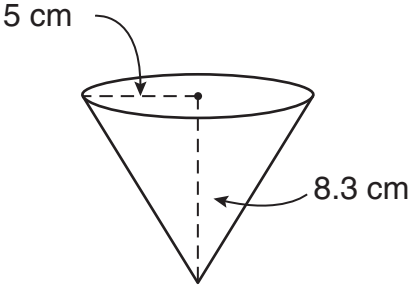
A



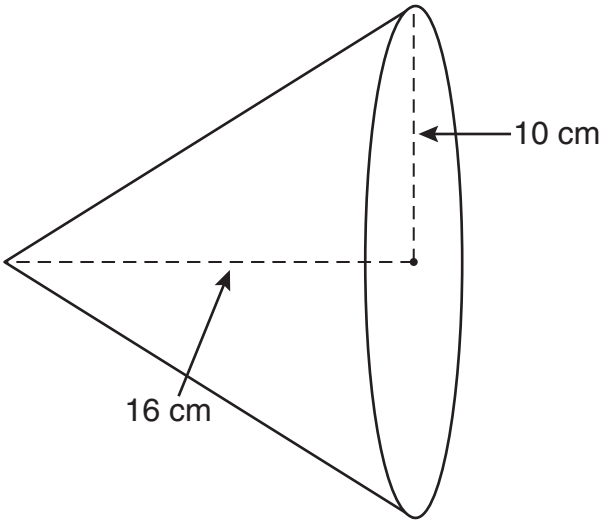
C



B

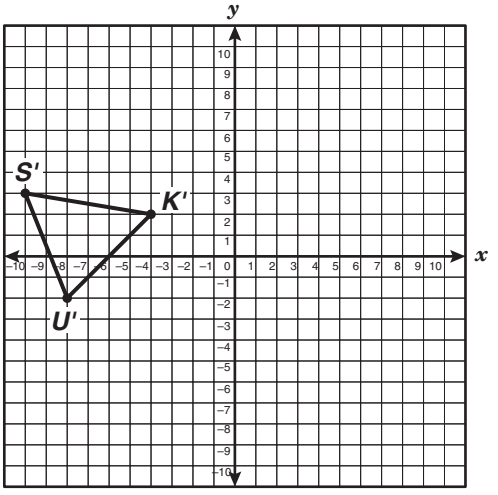


D

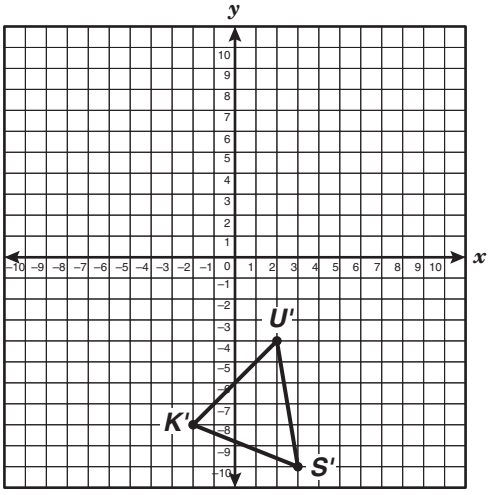


2 ΔKSU has vertices K (−2, 2), S (4, 3), and U (2, −2). Which of the following graphs is a reflection of ΔKSU across the line $x = -3$?

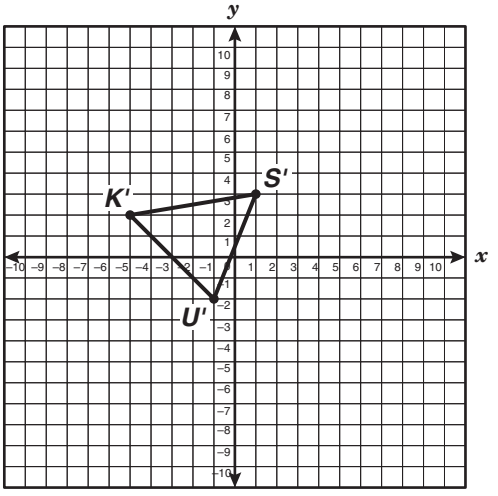
A



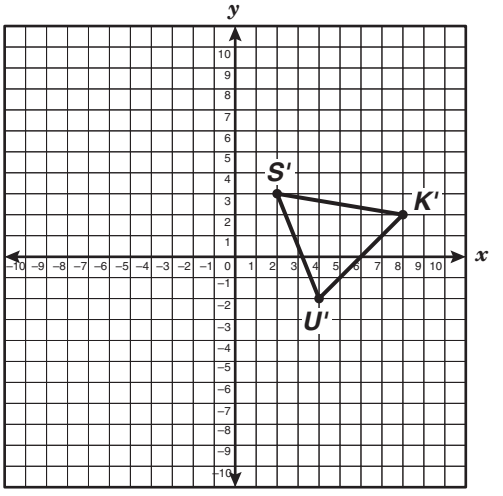
C



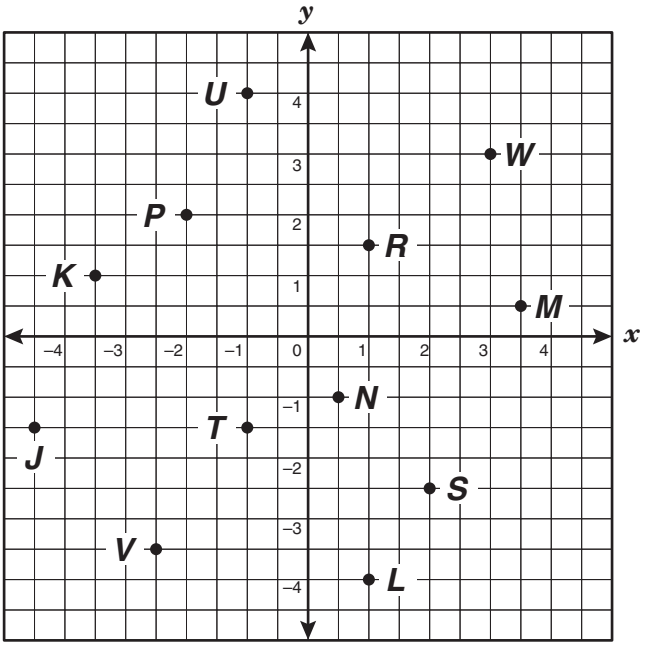
B



D



3 Which point on the grid satisfies the conditions $x > \frac{11}{5}$ and $y < x$?



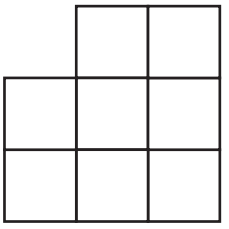
A Point W

B Point S

C Point M

D Point R

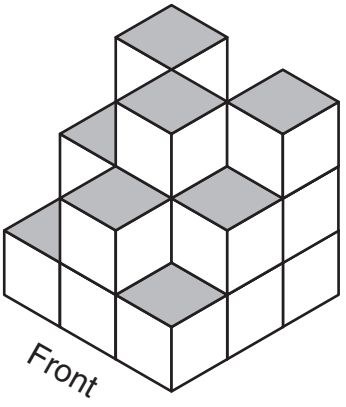
1 The drawing represents the front view of a 3-dimensional object built with 16 cubes.



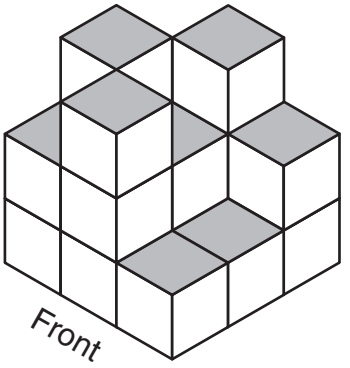
Front view

Which 3-dimensional view represents the same structure?

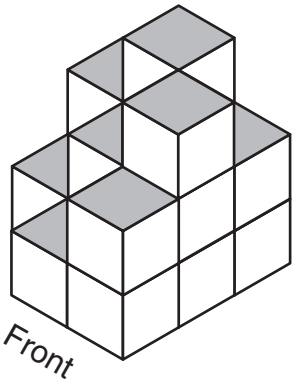
A



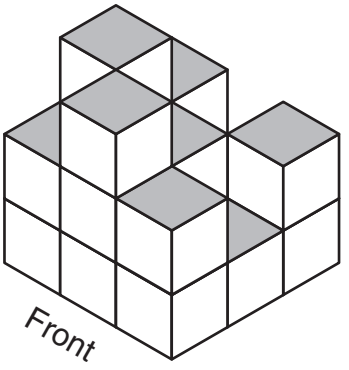
C



B



D



2 Abran has 42 linear feet of fencing to build a pen for four puppies. Which of the following statements best describes the pen he should build in order to provide the maximum area for these puppies?

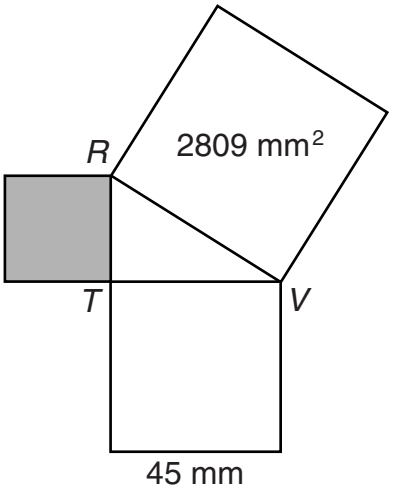
A A circular pen with a radius of approximately 6.5 ft

B A rectangular pen with dimensions of 10 ft by 11 ft

C A square pen with side lengths of 10.5 ft

D An equilateral triangular pen with side lengths of 14 ft

3 Look at the drawing shown below.



If ΔRTV is a right triangle formed by the placement of three squares, what is the area of the shaded square?

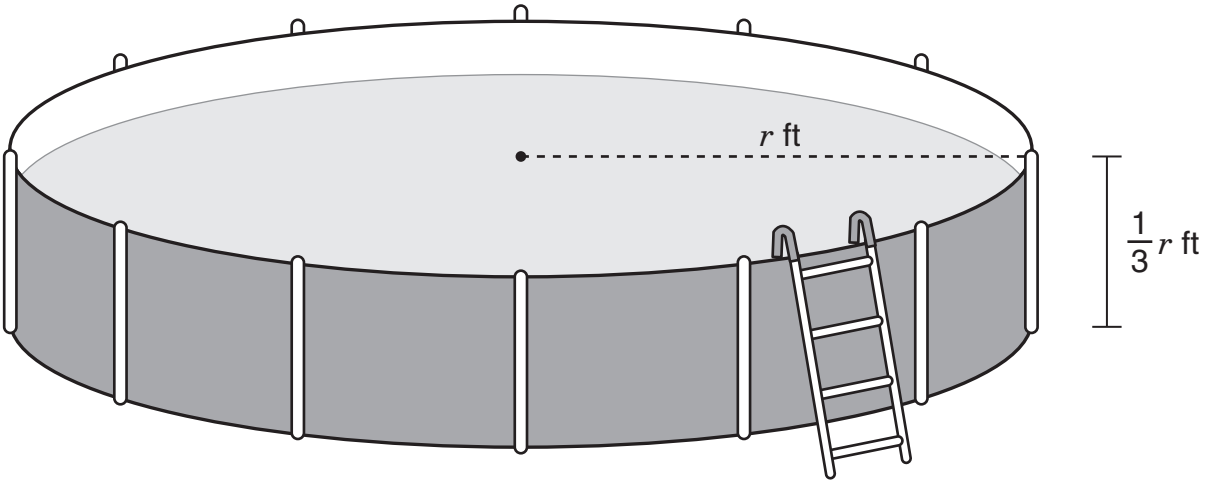
A 28 mm^2

B 125 mm^2

C 784 mm^2

D 64 mm^2

1 The drawing below shows an aboveground swimming pool in the shape of a cylinder with a radius of r feet and a height of $\frac{1}{3}r$ feet.



If the water level is x feet from the top of the swimming pool, which expression best represents the volume of water in this pool in cubic feet?

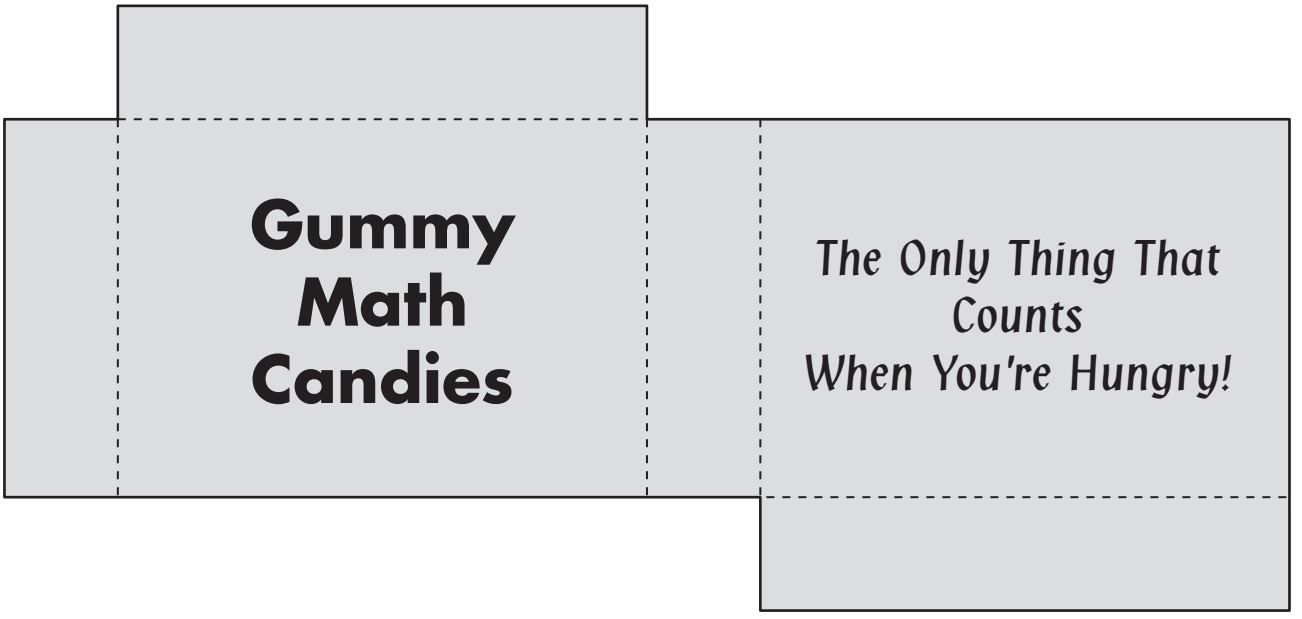
A $\frac{1}{3}\pi r^3 - \pi x$

B $\frac{1}{3}\pi r^3 - \pi r^2 x$

C $\frac{1}{3}\pi r^3 + \pi r^2 x$

D $\frac{1}{3}\pi r^3 + \pi x$

2 Mr. Hernández designed the box for his company's newest line of gummy candies, as shown below. Use the ruler on the Mathematics Chart to measure the dimensions of the net of the box to the nearest tenth of a centimeter.



Which is closest to the surface area of this box?

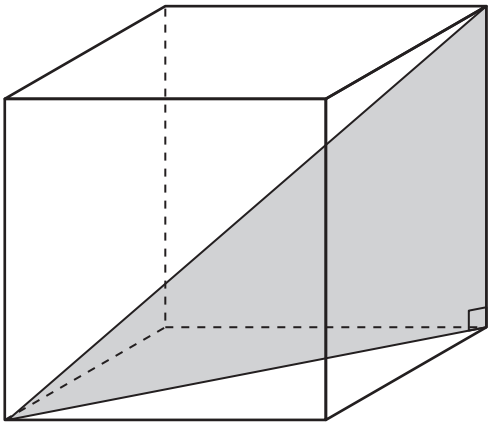
A 53 cm^2

B 100 cm^2

C 112 cm^2

D 106 cm^2

3 Matthew correctly constructed a model of a right triangle with the largest dimensions possible to fit in a cube, as shown in the figure below.



If each side of the cube measures eight centimeters, what is the approximate length of the hypotenuse of this right triangle?

A 13.86 cm

B 11.31 cm

C 19.31 cm

D 16 cm

4 Ying Yu bought a rectangular box to display her doll collection. She decided to exchange the box for a similar one that had double its dimensions. How does the volume of the larger rectangular box compare to the volume of the smaller box?

A The volume is six times as large.

B The volume is eight times as large.

C The volume is four times as large.

D The volume is twice as large.

1 Cathy is making a sugar solution to pour into her hummingbird feeders. The solution is to be 4 parts water to 1 part sugar. If Cathy uses a gallon of water, how many cups of sugar will she need?

A 16 cups

B 1 cup

C 2 cups

D 4 cups

2 Mrs. Sandoval's knitting basket contains 3 balls of blue yarn, 2 balls of white yarn, and 3 balls of red yarn. One evening Mrs. Sandoval randomly selected a ball of yarn from her basket and replaced it after she finished knitting. The next evening she randomly selected another ball of yarn from the basket. What is the probability that on the first evening the selected ball of yarn was white and that on the second evening the selected ball of yarn was red?

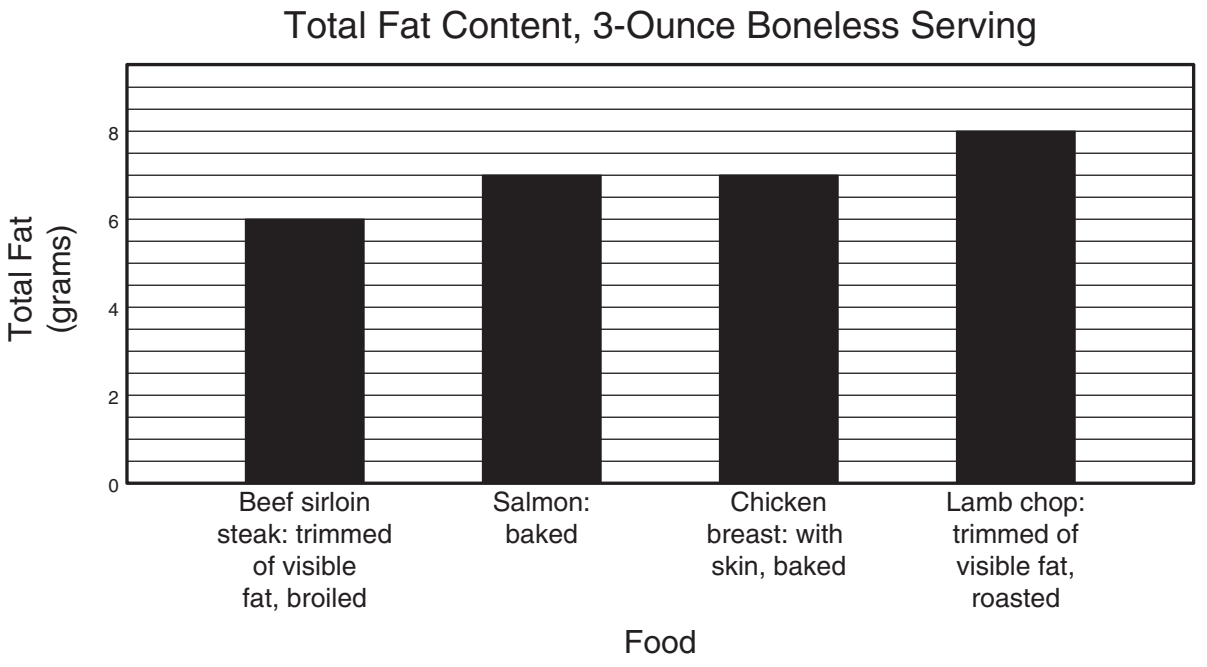
A $\frac{9}{64}$

B $\frac{5}{8}$

C $\frac{3}{32}$

D $\frac{3}{28}$

3 The graph below shows the total fat content of a 3-ounce boneless serving of four types of food.



Which conclusion can be drawn from the graph?

A The lamb chop has 2 more calories than beef sirloin steak.

B The foods that were baked each seem to have more grams of total fat than the food that was roasted.

C The salmon and chicken have the same number of calories.

D The food that was broiled seems to have fewer grams of total fat than the food that was roasted.

1 Carmen and her family spent \$0.09 per mile for gasoline during a recent road trip. Which statement best describes this situation?

A Carmen and her family purchased 15.5 gallons of gasoline priced at \$1.61 per gallon for their 394-mile road trip.

B Carmen and her family purchased 22.5 gallons of gasoline priced at \$1.58 per gallon for their 395-mile road trip.

C Carmen and her family purchased 17 gallons of gasoline priced at \$1.75 per gallon for their 371-mile road trip.

D Carmen and her family purchased 21 gallons of gasoline priced at \$1.49 per gallon for their 312-mile road trip.

2 Mrs. Phan wants to buy tulips and lilies for her house. She needs at least 5 containers of tulips and at least 5 containers of lilies. Tulips cost \$6 per container and lilies cost \$4 per container. If Mrs. Phan has a total of \$75 to spend for the tulips and lilies, what is the greatest number of containers she can buy?

A 10

B 12

C 16

D 18

3 If $x \clubsuit y = y + (x - y)x$, what is the value of $5 \clubsuit 3$?

A 16

B −7

C 8

D 13

Item Number	Student Expectation	Correct Answer
OBJECTIVE 1		
1	A.1 (B)	D
2	A.1 (D)	D
3	A.1 (E)	B
OBJECTIVE 2		
1	A.2 (B)	B
2	A.2 (C)	C
3	A.3 (A)	A
4	A.4 (B)	A
OBJECTIVE 3		
1	A.5 (C)	B
2	A.6 (C)	D
3	A.6 (G)	18
OBJECTIVE 4		
1	A.7 (B)	B
2	A.7 (C)	C
3	A.8 (A)	C
4	A.8 (B)	D
OBJECTIVE 5		
1	A.9 (C)	B
2	A.9 (D)	A
3	A.10 (A)	B
OBJECTIVE 6		
1	8.6 (A)	C
2	8.6 (B)	A
3	8.7 (D)	C
OBJECTIVE 7		
1	8.7 (A)	B
2	8.7 (B)	A
3	8.7 (C)	C
OBJECTIVE 8		
1	8.8 (B)	B
2	8.8 (C)	D*
3	8.9 (A)	A
4	8.10 (B)	B
OBJECTIVE 9		
1	8.3 (B)	D
2	8.11 (A)	C
3	8.13 (B)	D

Item Number	Student Expectation	Correct Answer
OBJECTIVE 10		
1	8.14 (A)	B
2	8.14 (C)	C
3	8.15 (A)	D

* When printing a ruler item, make sure that the Print Menu is set to print the page at 100% to ensure that the art reflects the intended measurement.