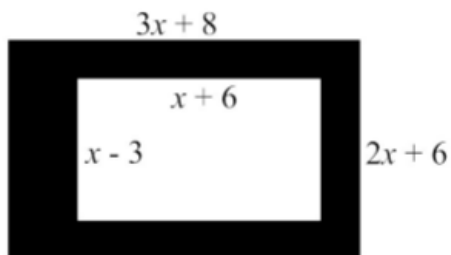


Practice Test 1

Each shape below is a rectangle. Which polynomial represents the area of the shaded region?



- A. $5x^2 + 31x + 30$
- B. $5x^2 + 31x + 66$
- C. $5x^2 + 37x + 30$
- D. $5x^2 + 37x + 66$

May 22-11:06 AM

Practice Test 2

The force, F , acting on a charged object varies inversely to the square of its distance, r , from another charged object. When the two objects are 0.64 meter apart, the force acting on them is 8.2 Newtons. *Approximately* how much force would the object feel if it is at a distance of 0.77 meter from the other object?

- A. 1.7 Newtons
- B. 5.7 Newtons
- C. 11.9 Newtons
- D. 12.9 Newtons

May 22-11:07 AM

Practice Test 3

Which function rule will rotate a geometric figure 90° clockwise?

- A. $f(x, y) = (x, -y)$
- B. $f(x, y) = (-x, y)$
- C. $f(x, y) = (y, -x)$
- D. $f(x, y) = (-y, x)$

May 22-11:08 AM

Practice Test 4

The speed of a wave during a tsunami can be calculated with the formula $s = \sqrt{9.81d}$, where s represents speed in meters per second, d represents the depth of the water in meters where the disturbance (for example earthquake) takes place, and 9.81 m/s^2 is the acceleration due to gravity. If the speed of the wave is 150 m/s , what is the approximate depth of the water where the disturbance took place?

- A. 1.2 meters
- B. 38 meters
- C. 2,294 meters
- D. 220,725 meters

May 22-11:08 AM

Practice Test 5

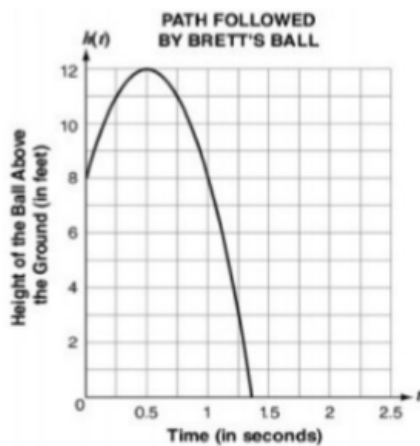
What is the domain and range of $y = -2\sqrt{x-3} + 5$?

- A. $x \geq -3, y \leq 5$
- B. $x \geq -3, y \geq 5$
- C. $x \geq 3, y \leq 5$
- D. $x \geq 3, y \geq 5$

May 22-11:09 AM

Practice Test 6

Brett is standing on the roof of his house. He threw a ball into the air. The height of the ball, t seconds after Brett threw it, is represented by the graph below.



Which of these statements comparing the path of the ball is **true**?

- A. The height is decreasing between 0 and 1.375 seconds
- B. The height is decreasing between 0 and 12 seconds
- C. The height is increasing between 0 and 0.5 seconds
- D. The height is increasing between 8 and 12 seconds

May 22-11:09 AM

Practice Test 7

The parent function $f(x) = \frac{1}{x}$ is reflected over the x -axis, translated left 7 and up 4. Describe the end behavior of the graph of the resulting function as x approaches infinity?

- A. $f(x)$ approaches 4
- B. $f(x)$ approaches -4
- C. $f(x)$ approaches 7
- D. $f(x)$ approaches -7

May 22-11:10 AM

Practice Test 8

Which value of k completes the perfect square trinomial for $x^2 - 5x + k$?

- A. $-5/2$
- B. $-25/4$
- C. $25/4$
- D. 25

May 22-11:10 AM

Practice Test 9

When will a quadratic function have non-real zeros?

- A. When the graph intersects the x- axis once.
- B. When the graph intersects the x- axis twice.
- C. When the graph never intersects the x-axis.
- D. When the graph never intersects the y-axis.

May 22-11:10 AM

Practice Test 10

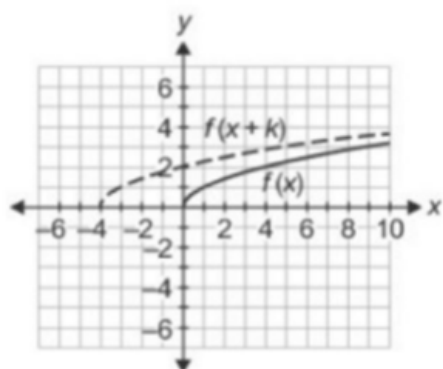
A store display shows one red shirt, three blue shirts, and four shirts with red and white stripes. The display also shows three pairs of blue jeans, two pairs of white pants, and three pairs of red shorts. What is the probability of randomly selecting an item with white or red on it?

- A. $\frac{1}{4}$
- B. $\frac{3}{4}$
- C. $\frac{3}{8}$
- D. $\frac{5}{8}$

May 22-11:11 AM

Practice Test 11

The graphs of $f(x) = \sqrt{x}$ and $f(x+k) = \sqrt{x+k}$ are shown.



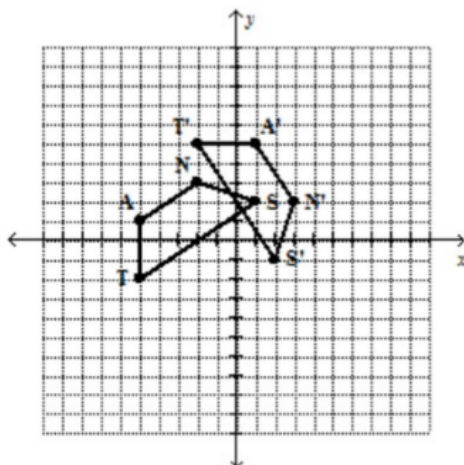
What is the value of k ?

- A. -4
- B. 4
- C. -16
- D. 16

May 22-11:11 AM

Practice Test 12

The transformation shown below maps Trapezoid $TANS$ onto Trapezoid $T'A'N'S'$. Tell if the pre-image and image are congruent based on the given information and justify.

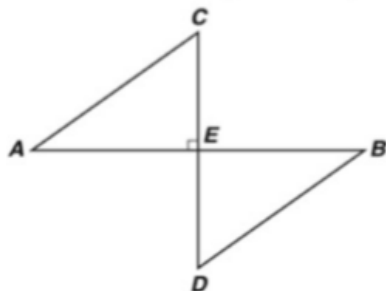


- A. No, they are not congruent because a rotation is not a rigid transformation and it is impossible to prove the two figures are congruent.
- B. No, they are not congruent because a translation is not a rigid transformation and it is impossible to prove the two figures are congruent.
- C. Yes, they are congruent because the image is a rotation of the pre-image and rotations produce congruent figures.
- D. Yes, they are congruent because the image is a translation of the pre-image and translations produce congruent figures.

May 22-11:12 AM

Practice Test 13

Given: E is the midpoint of \overline{CD} ; $\angle C \cong \angle D$



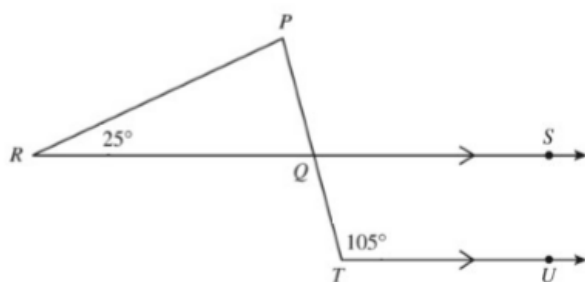
Which of the following statements *must* be true?

- A. $\angle A \cong \angle D$
- B. $\angle B \cong \angle C$
- C. $\overline{CE} \cong \overline{BE}$
- D. $\overline{AC} \cong \overline{BD}$

May 22-11:12 AM

Practice Test 14

Find the $m\angle RPQ$.

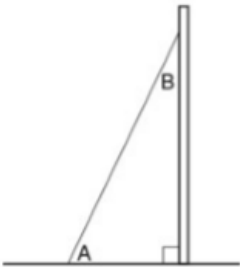


- A. 50°
- B. 75°
- C. 80°
- D. 105°

May 22-11:13 AM

Practice Test 15

A billboard on level ground is supported by a brace, as shown in the accompanying diagram. The measure of *angle A* is 15° greater than twice the measure of *angle B*. Determine the measure of *angle B*.

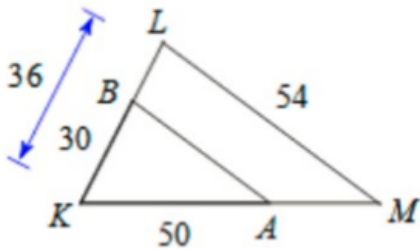


- A. 25°
- B. 30°
- C. 45°
- D. 55°

May 22-11:13 AM

Practice Test 16

Triangle KAB is similar to triangle KML. Find the length of AB.

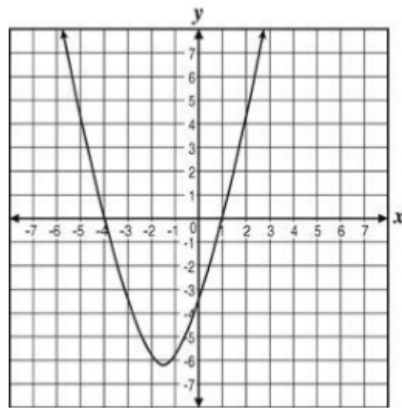


- A. 32.4
- B. 45
- C. 50
- D. 64.8

May 22-11:14 AM

Practice Test 17

The graph of $y = x^2 + bx - 4$ is shown.



Based on this graph, which value of b will satisfy the equation $x^2 + bx - 4 = 0$?

- A. -4
- B. -1.5
- C. 3
- D. 8

May 22-11:14 AM

Practice Test 18

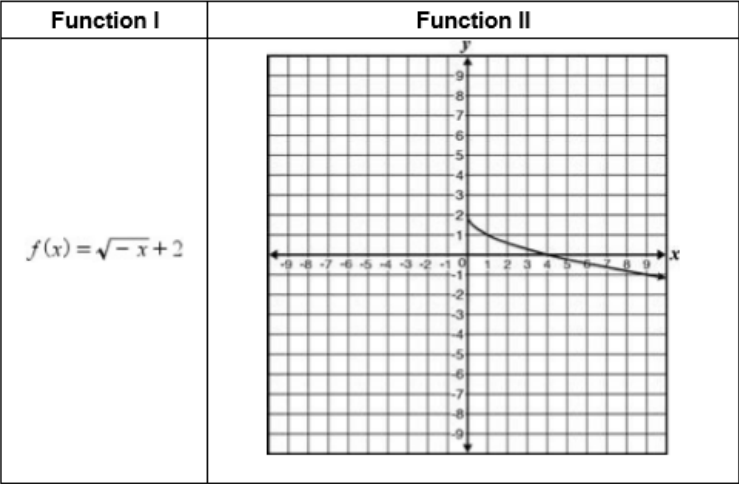
A toy company is trying to determine how much to charge for a new toy. A sales consultant determined the function, $P(c) = -8(c - 20)(c - 35)$, to model the daily profit where c represents the price charged for the toy. According to the function, which of the following are **not** true?

- A. \$27.50 is the price charged that would maximize the daily profit
- B. the maximum daily profit is \$450
- C. the daily costs for the company is \$700
- D. the company must charge between \$20 and \$35 in order to make a profit

May 22-11:14 AM

Practice Test 19

Two square root functions are shown.



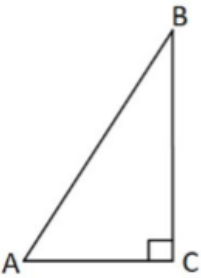
Which statement about these two functions is true?

- A. Both functions have the same maximum value.
- B. Both functions have the same domain.
- C. Both functions have a y-intercept of 2.
- D. All of the above

May 22-11:15 AM

Practice Test 20

Which of the following is equivalent to sin A?



- A. SinB
- B. CosA
- C. CosB
- D. TanC

May 22-11:15 AM

Practice Test 21

Find the width of the Brady River, x , to the nearest meter.



- A. 6m
- B. 13m
- C. 15m
- D. 17m

May 22-11:16 AM

Practice Test 22

A coin is flipped 10 times and lands on tails 6 of those times. Which of the following is true?

- A. The experimental probability of landing on tails is *greater than* the theoretical probability of landing on tails.
- B. The experimental probability of landing on tails is *less than* the theoretical probability of landing on tails.
- C. The experimental and theoretical probabilities of landing on tails are equal.
- D. None of the above are true.

May 22-11:16 AM

Practice Test 23

- i. From the top of a building 42 feet high, the angle of depression to a car stopped on the ground is 27 degrees. What is the approximate distance from the car to the base of the building?
- A. 21 feet
 - B. 69 feet
 - C. 82 feet
 - D. 93 feet

May 22-11:17 AM

Practice Test 24

Jane has a bag of 4 purple marbles, 2 yellow marbles, and 5 green marbles. Jane is going to pull out one marble, put it back, and draw another. What is the probability of Jane pulling out a yellow marble and then a purple marble? Are those two events independent or dependent and why?

- A. 0.55; independent, because those two events do not affect each other
- B. 0.55; dependent, because those two events affect each other
- C. 0.07; independent, because those two events do not affect each other
- D. 0.07; dependent, because those two events affect each other

May 22-11:17 AM

Practice Test 25

Which expression is equivalent to the expression shown below?

$$\left(8w^7x^{-5}y^3z^{-9}\right)^{-\frac{2}{3}}$$

- A. $\frac{x^{10/3}z^6}{4w^{14/3}y^2}$
- B. $\frac{4w^{14/3}y^2}{x^{10/3}z^6}$
- C. $\frac{2w^{5/3}y^{1/3}}{x^{7/3}z^{11/3}}$
- D. $\frac{x^{7/3}z^{11/3}}{2w^{5/3}y^{1/3}}$

May 22-11:17 AM

Practice Test 26

A rock was thrown from a cliff and travels in the path represented by the function:

$h(t) = -16(t-5)(t+4)$. Determine the y-intercept and explain what it represents in the context of the situation.

- A. The y-intercept is -20 and it represents the time at which the rock hits the water.
- B. The y-intercept is -20 and it represents the height of the rock when it was initially thrown.
- C. The y-intercept is 320 and it represents the time at which the rock hits the water.
- D. The y-intercept is 320 and it represents the height of the rock when it was initially thrown.

May 22-11:18 AM

Released Item 1

Which expression is equivalent to $(8w^7x^{-5}y^3z^{-9})^{-\frac{2}{3}}$?

A $\frac{x^{\frac{10}{3}}z^6}{4w^{\frac{14}{3}}y^2}$

B $\frac{4w^{\frac{14}{3}}y^2}{x^{\frac{10}{3}}z^6}$

C $\frac{2w^{\frac{5}{3}}y^{\frac{1}{3}}}{x^{\frac{7}{3}}z^{\frac{11}{3}}}$

D $\frac{x^{\frac{7}{3}}z^{\frac{11}{3}}}{2w^{\frac{5}{3}}y^{\frac{1}{3}}}$

May 22-11:18 AM

Released Item 2

A marathon is roughly 26.2 miles long. Which equation could be used to determine the time, t , it takes to run a marathon as a function of the average speed, s , of the runner where t is in hours and s is in miles per hour?

A $t = 26.2 - 26.2s$

B $t = 26.2 - \frac{s}{26.2}$

C $t = 26.2s$

D $t = \frac{26.2}{s}$

May 22-11:19 AM

Released Item 3

The force, F , acting on a charged object varies inversely to the square of its distance, r , from another charged object. When the two objects are 0.64 meter apart, the force acting on them is 8.2 Newtons. **Approximately** how much force would the object feel if it is at a distance of 0.77 meter from the other object?

- A 1.7 Newtons
- B 5.7 Newtons
- C 11.9 Newtons
- D 12.9 Newtons

May 22-11:20 AM

Released Item 4

A system of equations is shown below.

$$y = x^2 + 2x + 8$$

$$y = -4x$$

What is the smallest value of y in the solution set of the system?

- A -4
- B -2
- C 8
- D 16

May 22-11:20 AM

Released Item 5

The cost of a newspaper advertisement is a function of its size.

- A company wants its advertisement to have a height that is twice its width.
- The newspaper charges a flat rate of \$50 plus an additional \$10 per square inch.
- The company can spend no more than \$2,050 on the advertisement.

What is the maximum height of an advertisement that the company can afford?

- A 5 inches
- B 10 inches
- C 15 inches
- D 20 inches

May 22-11:20 AM

Released Item 6

Farmer Brown built a rectangular pen for his chickens using 12 meters of fence.

- He used part of one side of his barn as one length of the rectangular pen.
- He maximized the area using the 12 meters of fence.

Farmer Johnson built a rectangular pen for her chickens using 16 meters of fence.

- She used part of one side of her barn as one length of the rectangular pen.
- The length of her pen was 2 meters more than the length of Farmer Brown's pen.
- The width of her pen was 1 meter more than the width of Farmer Brown's pen.

How much larger is Farmer Johnson's rectangular pen than Farmer Brown's?

- A 24 square meters
- B 18 square meters
- C 16 square meters
- D 14 square meters

May 22-11:21 AM

Released Item 7

Suppose that Jamal can choose to get home from work by taxi or bus.

- When he chooses to get home by taxi, he arrives home after 7 p.m. 8 percent of the time.
- When he chooses to get home by bus, he arrives home after 7 p.m. 15 percent of the time.
- Because the bus is cheaper, he uses the bus 60 percent of the time.

What is the **approximate** probability that Jamal chose to get home from work by bus, given that he arrived home after 7 p.m.?

- A 0.09
- B 0.14
- C 0.60
- D 0.74

May 22-11:21 AM

Released Item 8

The graph of $f(x) = 2x^2 - 3x + 5$ will be translated 8 units down, producing the graph of $q(x)$. Which equation represents the new function, $q(x)$?

- A $q(x) = 2x^2 - 3x - 3$
- B $q(x) = 2x^2 - 11x + 5$
- C $q(x) = 2x^2 - 3x + 13$
- D $q(x) = 2x^2 + 5x + 5$

May 22-11:22 AM

Released Item 9

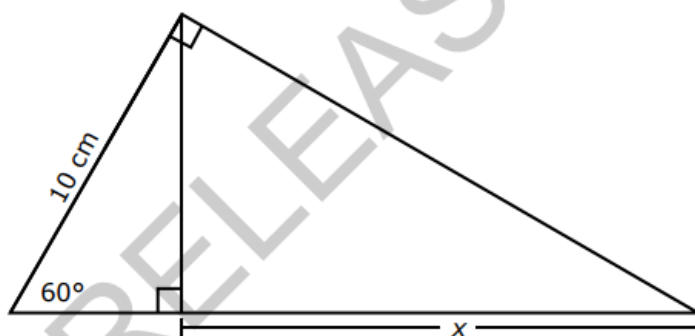
The equation $2x^2 - 5x = -12$ is rewritten in the form of $2(x - p)^2 + q = 0$. What is the value of q ?

- A $\frac{167}{16}$
- B $\frac{71}{8}$
- C $\frac{25}{8}$
- D $\frac{25}{16}$

May 22-11:22 AM

Released Item 10

What is the value of x in the triangle below?



- A $\frac{5\sqrt{3}}{2}$ cm
- B $5\sqrt{3}$ cm
- C 10 cm
- D 15 cm

May 22-11:23 AM

Released Item 11

The length of a rectangular prism is $4\sqrt{3}$ units. The height is $3\sqrt{6}$ units. If the volume is irrational, which could be the measure of the width of the rectangular prism?

- A $2\sqrt{50}$
- B $4\sqrt{12}$
- C $5\sqrt{8}$
- D $7\sqrt{18}$

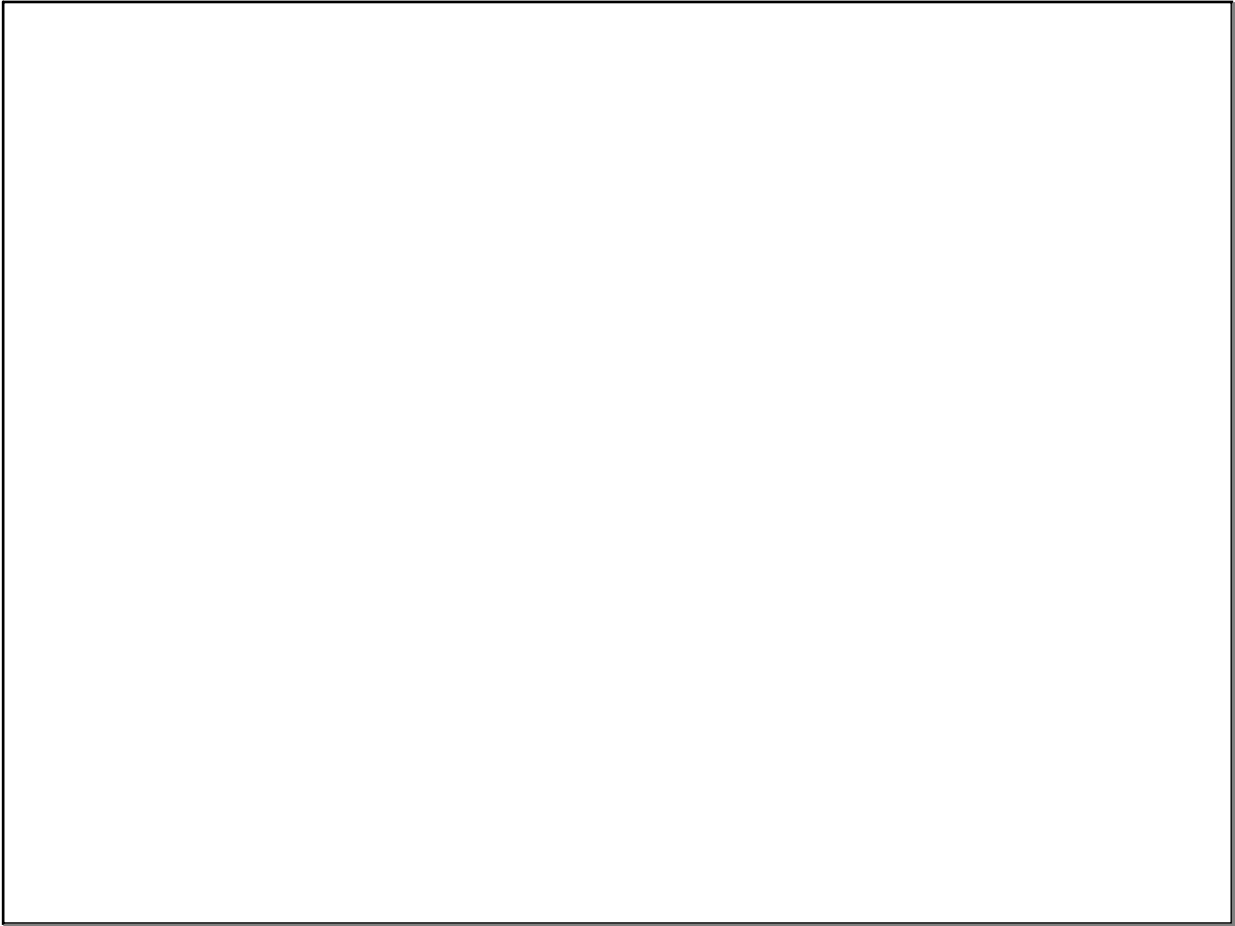
May 22-11:23 AM

Released Item 12

Which function is equivalent to $y = x^2 - 6x + 10$?

- A $y = (x + 3)^2 - 1$
- B $y = (x - 3)^2 + 1$
- C $y = (x + 6)^2 - 10$
- D $y = (x - 6)^2 + 10$

May 22-11:24 AM



May 22-11:34 AM