

The binomial $x + 28y$ is a factor of which of the following?

21  Mark for Review

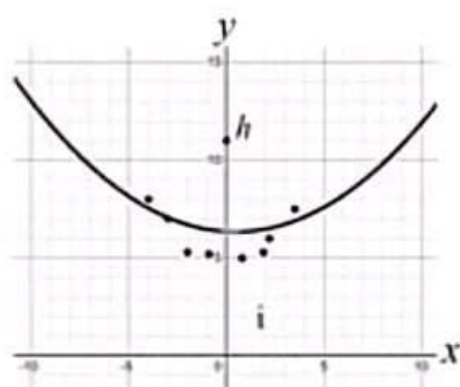
(A) $x^2 + 29xy + 28y^2$

(B) $x^2 + 29xy + 29y^2$

(C) $x^2 + 84xy + 84y^2$

(D) $x^2 + 58xy + 87y^2$

During the first 8.00 seconds after a car started moving, its speed increased to 11.0 meters per second. From 8.00 seconds to 14.0 seconds after the car started moving, its speed increased from 11.0 meters per second to 23.0 meters per second. To the nearest hundredth, what is the positive difference between the average rate of change of the speed of the car, in meters per second per second, during the first 8.00 seconds after the car started moving and the average rate of change of the speed of the car, in meters per second per second, from 8.00 seconds to 14.0 seconds after the car started moving?



The scatter plots and the line of best fit of data set A with the equation $y = 0.07x^2 - 0.05x + 6.33$ is shown. If the point h is removed from the data set A to create the data set B with the equation $y = ax^2 + bx + c$, which of the following is true?

I. $a > 0.07$

II. $c < 6.33$

(A) I only



(B) II only

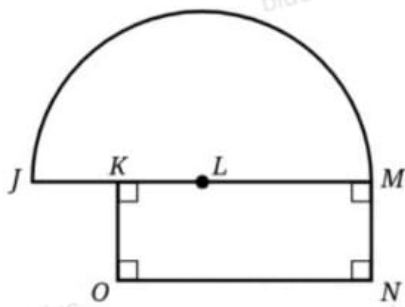


(C) I and II



(D) Neither I nor II





Note: Figure not drawn to scale.

In the figure shown, $\overline{JM}$ is the diameter and $\overline{LM}$ is a radius of semicircle L, and point K is the midpoint of $\overline{JL}$. If the length of $\overline{KL}$ is 13 units and the length of $\overline{MN}$ is 14 units, which expression represents the area, in square units, of this figure?

14

Mark for Review



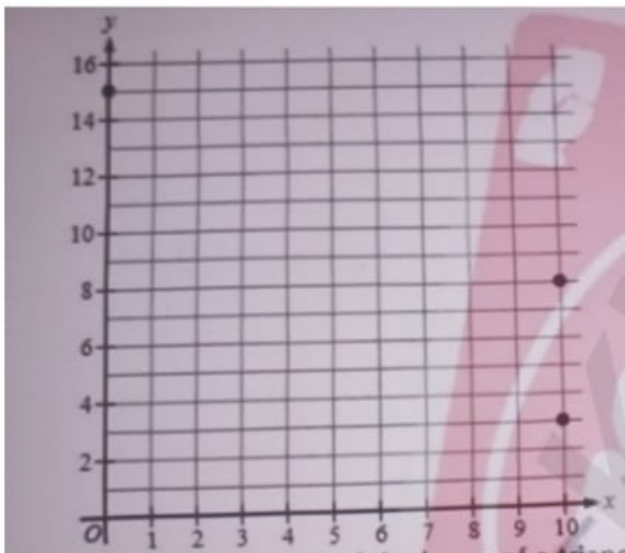
(A) $546 + 676\pi$

(B) $364 + 676\pi$

(C) $546 + 338\pi$

(D) $364 + 338\pi$

The points $(0, 15)$, $(10, 8)$, and $(10, 3)$ are shown in the xy -plane, where the x -axis and y -axis are measured in units.



These points define one of the bases of a triangular prism. The distance between the two bases of the prism is 20 units. What is the volume, in cubic units, of the prism?



$$x_1 \sim \sqrt[2n]{2x_1^n + 35}$$

REGRESSION PARAMETERS ⓘ

$$x_1 = 2.16606$$

$$n = 2.51764$$

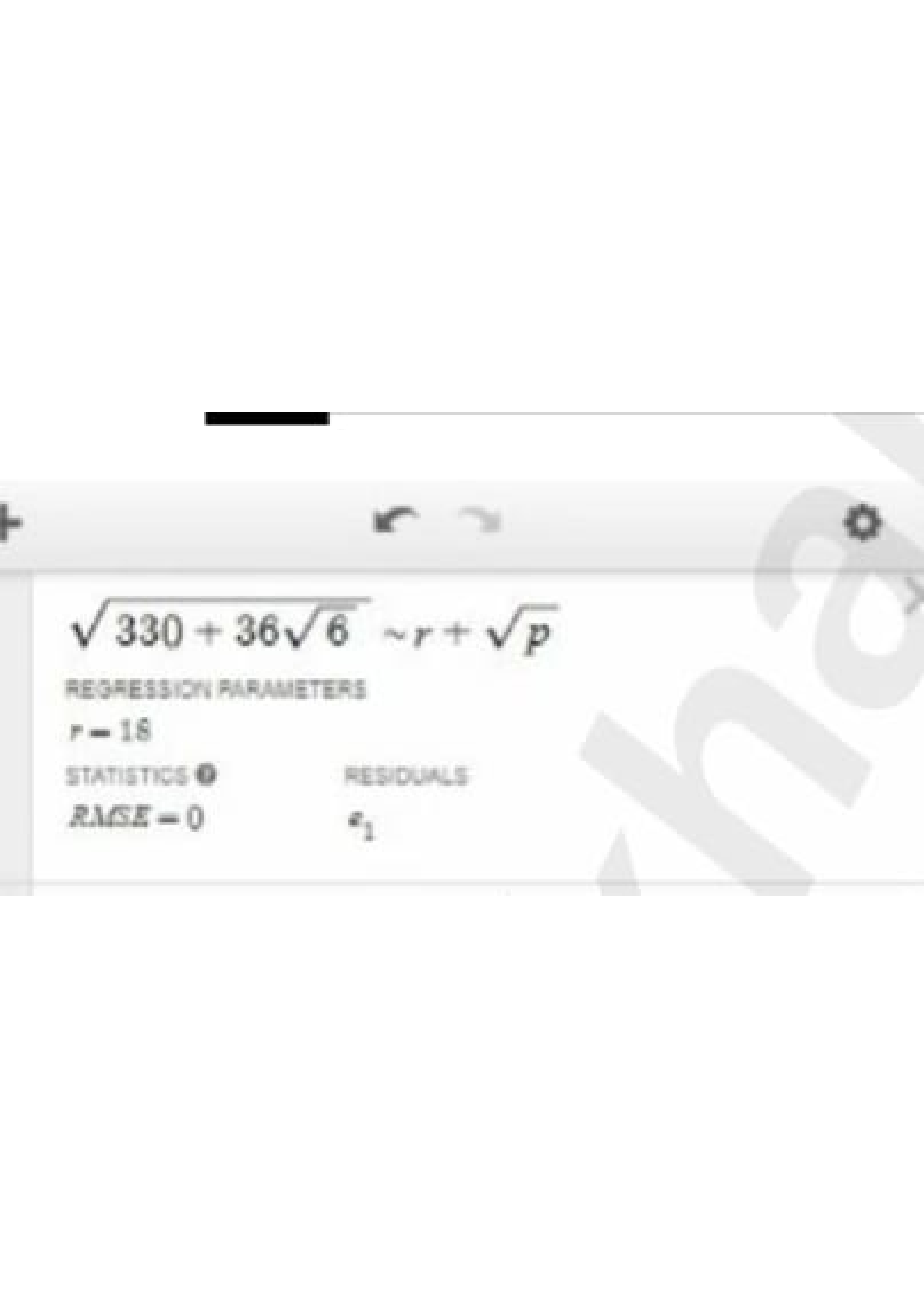
STATISTICS ⓘ

$$RMSE = 0$$

RESIDUALS

$$e_1$$

$$x_1^n$$


$$\sqrt{330 + 36\sqrt{6}} \sim r + \sqrt{p}$$

REGRESSION PARAMETERS

$$r = 18$$

STATISTICS 

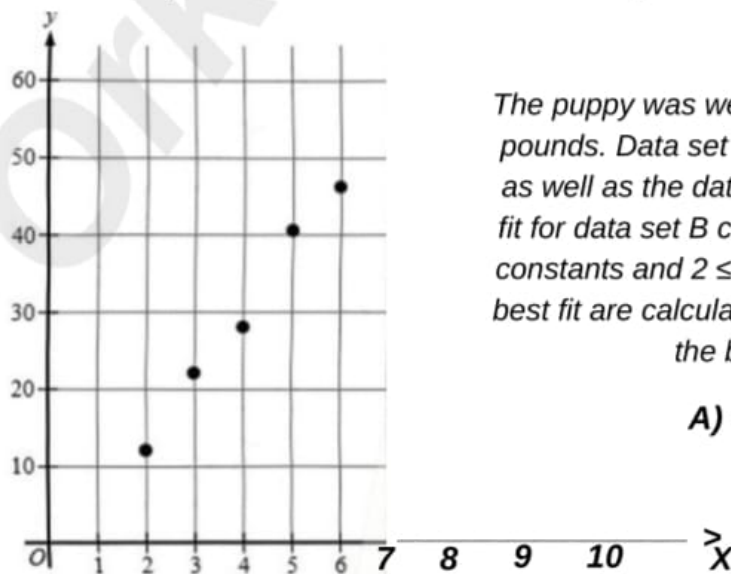
$$RMSE = 0$$

RESIDUALS

$$e_1$$

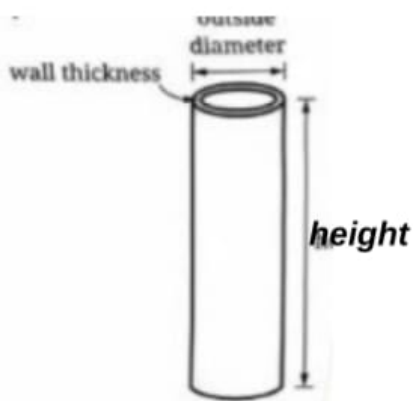
A cone is enclosed inside a sphere such that the edges of its base are entirely on the sphere and the top of the it touches the edge of the sphere. The diameter of the base of the cone is 56 m and the radius of the sphere is 35 m. The volume of the cone is $k\pi$ where k is a constant. What is the value of k rounded to the nearest whole number?

The scatterplot shows data set A, which consists of the weights y , in pounds, of a Labrador retriever puppy at various ages, x , in months. The equation of a line of best fit for the relationship in data set A can be written as $y = -5.0 + 8.7x$, where $2 \leq x \leq 6$.



The puppy was weighed again at 9 months old and weighed 52 pounds. Data set B consists of all the data points in data set A as well as the data point $(9, 52)$. The equation of a line of best fit for data set B can be written as $y = r + sx$, where r and s are constants and $2 \leq x \leq 9$. Assuming the equations of the lines of best fit are calculated in the same way, which of the following is the best estimate for the value of s ?

- A) 5.8 B) 8.7 C) 13.7 D) 17.7**



In the figure, a hollow steel pipe is in the shape of a right circular cylinder. The steel pipe has an outside diameter of 48 inches, a wall thickness of $\frac{5}{8}$ inches, and a height of 144 inches. Which of the following is closest to the volume, in cubic inches, of the wall of this steel pipe?

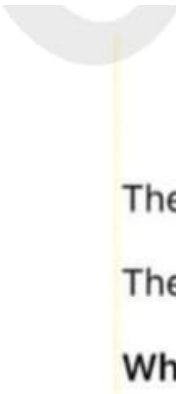
- A) 177 B) 565 C) 2,160 D) 13,395

Points $O(0, 0)$, $A(1, 0)$ and $B\left(\frac{5}{\sqrt{89}}, -\frac{8}{\sqrt{89}}\right)$ are connected to form angle AOB , which has a measure of p radians. Find the value of $\frac{\cos p}{\sin p}$.

A circle in the xy -plane has its center at $(3, -7)$ and has a radius of 12. An equation of this circle is $x^2 + y^2 + ax + by + c = 0$, where a , b , and c are constants. What is the value of c ?

The circle $x^2 + x\sqrt{t} + y^2 - y - 69 = 0$ has a radius $= \sqrt{86}$. What is the value of t ?

The function q is defined by $q(x) = a|x - 9|^2 - 87|x - 9| + b$, where a and b are constants, and $a > b > 87$. If $q(639) = h$ and $q(-621) = k$, where h and k are constants, what is the value of $9(-639)^{h-k} + 621(9)^{k-h}$?


$$f(x) = \sqrt{x^3 + ax^2 + bx + c}$$

The function f is defined by the given equation, where a, b, c are integers.

The graph of $y = f(x)$ passes through the point $(90, 0)$, and $f(0) = 27$.

What is the value of $9a + b$?

Triangle QRS is similar to triangle FGH such that Q, R and S correspond to F, G, and H, respectively. Each side of triangle FGH has $\frac{1}{4}$ the length of its corresponding side in triangle QRS. In triangle FGH, the measure of angle F is 35° , the measure of angle G is 8° , and $FG = a$. In triangle QRS, the measure of angle Q is b° and $QR = 20$. What is the value of $a + b$?

The function f is defined by $f(x) = \frac{(x^2 + ax + b)}{(2x + c)}$, where a , b , and c are constants. The graph of the function f in the xy -plane, where $y = f(x)$, does not intersect the line $x = 4$. If $f(5) = f(6) = 0$, what is the value of $a + b + c$?

In isosceles triangle ABC sides AB and AC are congruent. Point D divides side BC such that the length of $\overline{BD}$ is $\frac{5}{7}$ of the length of $\overline{BC}$. Point E lies on side AB and point F lies on side AC such that when segments DE and DF are drawn angle BED is congruent to angle CFD. If the length of $\overline{BE}$ is 10, what is the length of $\overline{CF}$?

- A) 4 B) 14 C) 50 D) 70

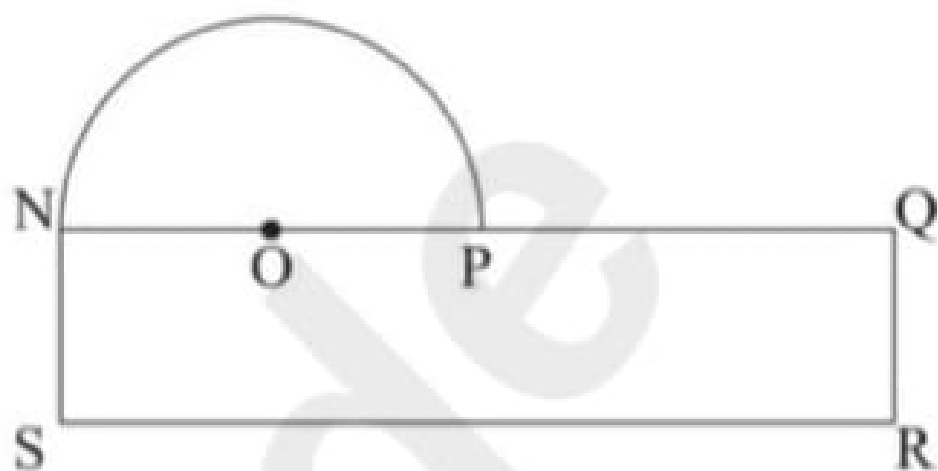
A line intersects two parallel lines, forming four acute angles and four obtuse angles. The measure of one of these eight angles is $(7x - 250)^\circ$. The sum of the measures of four of the eight angles is k° . Which of the following could NOT be equivalent to k , for all values of x ?

A) $-14x + 1,540$

C) $-28x + 1,720$

B) $14x - 320$

D) 360



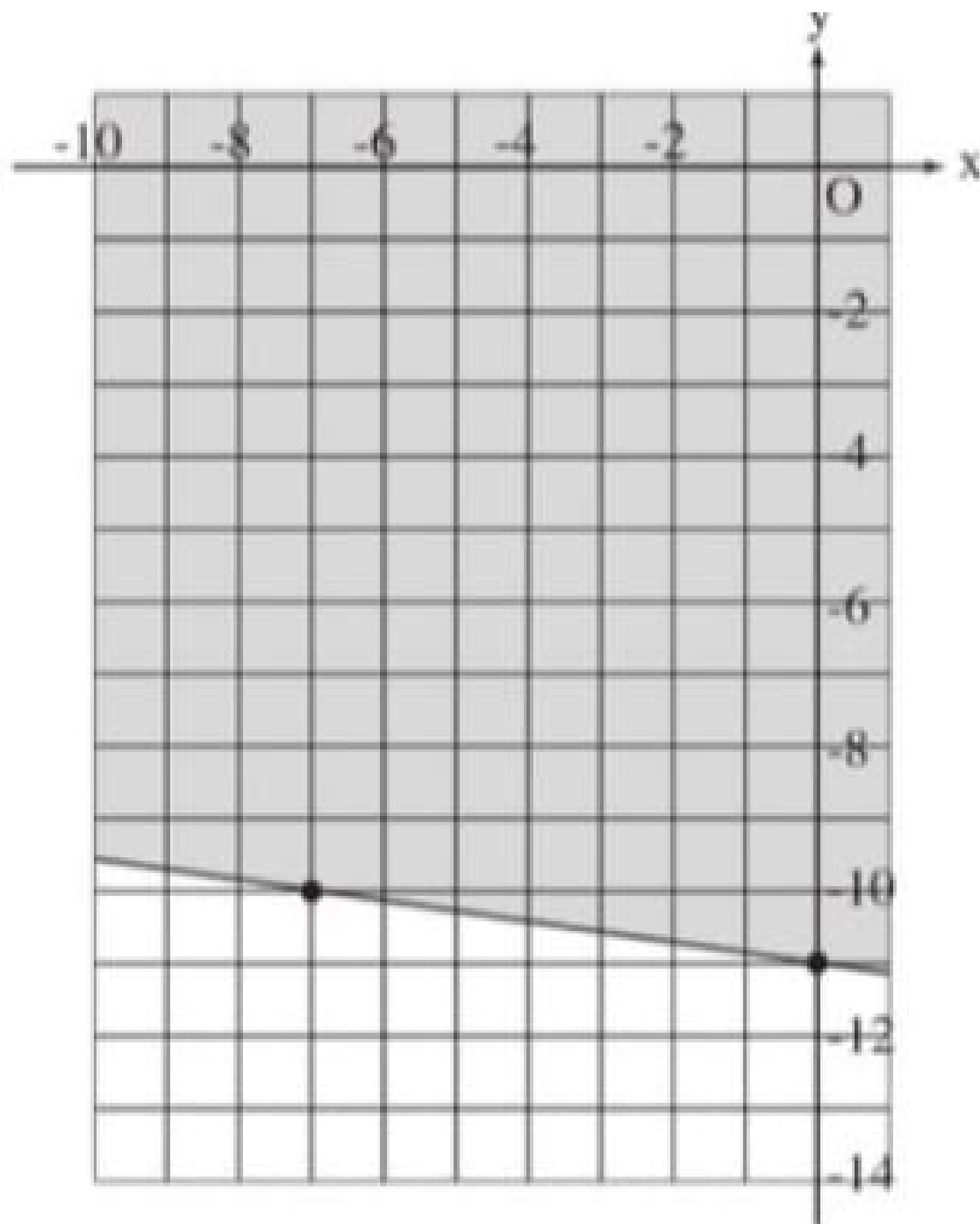
Note: Figure not drawn to scale.

In the given figure, NP is a diameter of semicircle O . Angles Q , R , and S are right angles, and point P is the midpoint of $\overline{NQ}$. If $PQ = 52$ feet and $NS = 18$ feet, the area of the figure can be expressed as $a\pi - b$ square feet, where a and b are integers. What is the value of $a - b$?

Views on Nuclear Energy Use

Response	Frequency
Strongly favor	56
Somewhat favor	214
Somewhat oppose	104
Strongly oppose	37

A researcher interviewed 411 randomly selected US residents and asked about their views on the use of nuclear energy. The table above summarizes the responses of the interviewees. If the population of the United States was 300 million when the survey was given, based on the sample data for the 411 US residents, what is the best estimate, in millions, of the difference between the number of US residents who somewhat favor or strongly favor the use of nuclear energy and the number of those who somewhat oppose or strongly oppose it? (Round your answer to the nearest whole number.)



The shaded region shown represents the solutions to $rx + ty \geq -77$, where r and t are constants. What is the value of $r + t$?

- A) 8 B) 6 C) -6 D) -7

	Volume (cubic units)
Right circular cylinder A	112π
Right circular cylinder B	$3,024\pi$

The table shows the volume of two similar solids, right circular cylinder A and right circular cylinder B. The radius of right circular cylinder A is 4 units. The surface area of right circular cylinder A is $k\pi$ square units, and the surface area of right circular cylinder B is $n\pi$ square units, where k and n are constants. What is the value of $n - k$? (The surface area of a right circular cylinder with radius r and height h is $2\pi r^2 + 2\pi rh$.)

A raised garden is in the shape of a right rectangular prism. Its base has a width of 3 feet and a length of 27 feet, and it will be filled 24 inches high with topsoil. The total cost of the topsoil needed to fill the garden to this height is 234 dollars. What is the unit cost, in dollars per cubic yard, for the topsoil? (1 yard = 3 feet; 1 foot = 12 inches)

One of the factors of $8x^4 + 26x^2 + 21$ is $ax^2 + b$, where ***a*** and ***b*** are positive constants. Which of the following is a possible value of ***ab***?

$$f(x) = 3(x - a)(x - b)(x - c)$$

The function f is defined by the given equation, where a , b , and c are distinct constants. When $a < x < b$, the value of $f(x)$ is positive. The graph of $y = f(x)$ in the xy -plane contains the point (r, s) , where r and s are constants. If $s = 8$, which of the following could be true?

I. $r < a$

II. $b < r < c$

III. $r > c$

A) I only

C) I and III only

B) III only

D) II and III only

The expression $6x^4 + 17x^2 + 7$ can be rewritten as $(3x^2 + a)(2x^2 + b)$, where a and b are positive integers, or as $(3x^2 + c)(2x^2 + d)$, where c and d are positive nonintegers. What is the value of $a + c$?

$$(3x + p)(5x^2 - 45)(2x^2 - 16x + 6p) = 0$$

In the given equation, p is a positive constant. The sum of the solutions to the equation is $\frac{20}{3}$. What is the value of p ?

$$ax + by = 68$$

$$2ax + 6y = 48$$

In the given system of equations, a and b are constants. The graphs of these equations intersect at the point $(x, 4)$. What is the value of b ?

. A number m is 5% of $q - m + 2r$,
where q is 12% of $q + 3r$, and $q = 500$.
What is the value of m ?

$$2\cos(90 - a)^\circ \cdot \cos b^\circ + \sin(a + y)^\circ \cdot \sin(90 - b)^\circ$$

In the given expression, a and b are constants such that $\sin a^\circ = 0.50$, $\cos b^\circ = 0.99$, and $0 < b < 90$.

What is the value of the given expression when $y = 0$?

In triangle PQR, the measure of angle P is $(3x + 5)^\circ$, the measure of angle Q is $(2x + 9)^\circ$, and the measure of angle R is $(4y + 5)^\circ$. If side QR is extended through point R to point S, and the measure of angle PRS is $(x + y)^\circ$, what is the value of $x + y$?

A company developed a plan to set the selling price of a product. The company determined that for a selling price of \$90.00, zero products would be sold. For each \$1.50 decrease in the selling price, the number of products sold would increase by one. For a revenue of exactly \$1,336.50, which of the following could be the number of products sold? (revenue = price x number of products sold)

13

The expression kx represents the result of decreasing a positive force, x , acting on an object by 0.34%. What is the value of k ?

$$4x^2 + 4y^2 + bx + by = 32$$

The given equation where b is a positive constant, defines a circle in the xy -plane. The radius of the circle is $\sqrt{106}$. What is the value of b ?

$$0 = (x - k)(7x + t) - (x - k)$$

In the given equation, k and t are positive constants.

A solution to the equation is $-\frac{22}{7}$, is the value of t ?

$$\frac{4}{7}(4x + 7)(x + \sqrt{4k + 7})(x - \sqrt{4k + 7}) = 0$$

In the given equation, k is a positive constant. The product of the solutions to the equation is 77. What is the value of k ?

$$8x^2 + 112px + 8y^2 - 64py = -448p^2$$

In the xy -plane, the graph of the given equation is a circle. The length of the radius of the circle is np , where n and p are positive constant. What is the value of n ?

The function h is defined by

$$h(x) = -\sqrt{x^2 + bx + c}, \text{ where } b \text{ and } c \text{ are constants.}$$

In the xy -plane, the graph of $y = h(x)$ contains the point $(2,0)$ and $(0,-\sqrt{266})$. If $h(m) = 0$, what is the greatest possible value of m ?

A right square pyramid has a height of 13 inches. A second right square pyramid has a height 39 inches. The area of the bases of the two pyramids is 400 square inches. Which of the following is closest to the difference in surface area of the second pyramid and the surface area of the first pyramid, in square inches, rounded to the nearest integer?

The function p is defined by

$p(x) = a((x + 6)^2 - b)((x + 6)^2 - c)$, where a , b , and c are constants. In the xy -plane, the graph of $y = p(x)$ passes through the points $(-7, 24)$ and $(0, 899)$. What is the value of $p(-12) + p(-5)$?

The function f is defined by $f(x) = -39^x$. The function g is a decreasing linear function. In the xy -plane, the graphs of $y = f(x)$ and $y = g(x)$ intersect at two points, (h, j) and (k, m) , where $j > m$. When $g(x) < f(x)$, which of the following must also be true?

- A) $x > k$
- B) $x < h$
- C) $x > k$ or $x < h$
- D) $h < x < k$

A small business owner budgets \$2,200 to purchase candles. The owner must purchase a minimum of 200 candles to maintain the discounted pricing. If the owner pays \$4.90 per candle to purchase small candles and \$11.60 per candle to purchase large candles, what is the maximum number of large candles the owner can purchase to stay within the budget and maintain the discounted pricing?

15.

$$(x - k)^2 = (k - 5a)(x - k)$$

In the given equation, a and k are constants with $k > 5a$. The sum of solutions is $3k + 21$. What is the value of a ?

$$g(x) = x^3 + ax^2 + bx + c$$

The function g is defined by the given equation, where a , b , and c are integer constants. The zeros of the function are -2 , -7 , and 3 . What is the value of a ?

- A) -42
- B) -6
- C) 6
- D) 42

REV

-
10. An equilateral triangle has a height of $(k - 7)\sqrt{3}$ and its area is $25\sqrt{3}$, where k is a positive constant. What is k ?

@sat_800

$$f(x) = 11x^3$$

The graph of $y = f(-x) + c$ in the xy -plane, where c is a positive integer constant, has an x -intercept at $(r, 0)$ and a y -intercept at $(0, t)$, where r and t are constants. Which of the following must be true about r and t ?

- A) $r < 0$ and $t < 0$
- B) $r < 0$ and $t > 0$
- C) $r > 0$ and $t > 0$
- D) $r > 0$ and $t < 0$

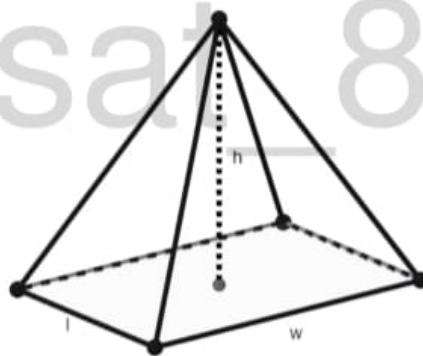
REV

The function v is defined by the equation $v(x) = \frac{x^2+bx+c}{(x+5)(x-19)}$, where b and c are constants. In the xy -plane, the graph of $y = v(x)$ passes through the points $(0, \frac{66}{95})$ and $(11, 0)$. If $v(q) = 0$, which of the following could be the value of q ?

- A. -6
- B. -5
- C. 5
- D. 6

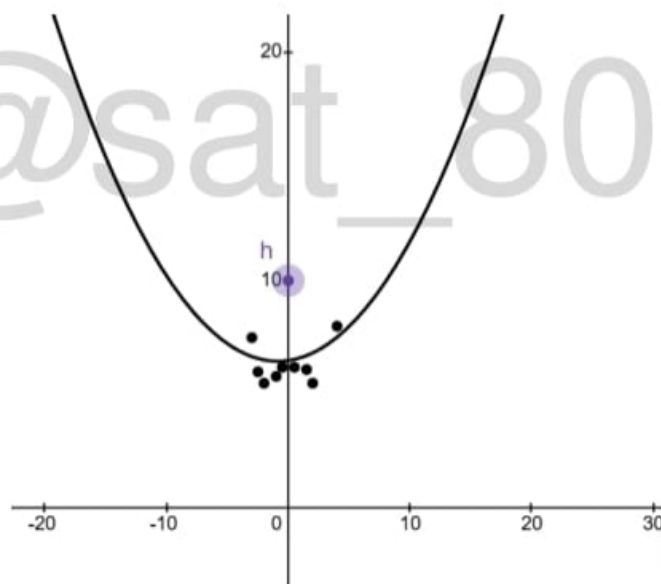
Which expression is a factor of $y^2(x - 9) - 36(x - 9)^3$?

- A. $y(x - 9)$
- B. $(x - 9)(x - 6)$
- C. $y + x - 9$
- D. $y + 6x - 54$



Problem 38

The figure shown is a right rectangular pyramid, where $l = 40$ units, $w = 16$ units, and $h = 15$ units. What is the surface area, in square units, of the pyramid?



Problem 36

The scatter plot and the line of best fit of data set A with the equation $y = 0.07x^2 - 0.05x + 6.33$ is shown. If the point h is removed from data set A to create data set B with the equation $y = ax^2 + bx + c$, which of the following is true?

- I. $a > 0.07$
- II. $c < 6.33$

- A. I only
- B. II only
- C. I and II
- D. Neither I nor II

$$x^2 + y^2 = 36$$

$$y = mx + \frac{b}{4}$$

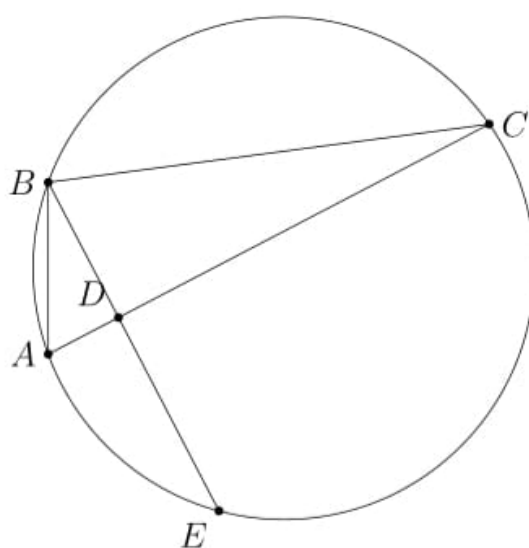
In the given system of equations m and b are negative constants. In the xy -plane, the graphs of the equations in the given system intersect at the point $(-5, y)$, where $y < 0$. Which expression represents the value of b ?

A. $-\frac{5m}{4} + \frac{\sqrt{11}}{4}$

B. $\frac{5m}{4} - \frac{\sqrt{11}}{4}$

C. $-20m + 4\sqrt{11}$

D. $20m - 4\sqrt{11}$



In the figure shown, points A , B , C , and E lie on the circle, and $AB < BC$. Segment AC is perpendicular to segment BE at point D , and $BD = \sqrt{322}$. The diameter of the circle is 163. If

$$\frac{CD}{AD} = r,$$

what is the value of r ?

Which expression is NOT a factor of $7,290x^4 - 56,250$?

A. $9x^2 + 25$

B. $3x^2 - 5$

C. $3x + 5$

D. 90

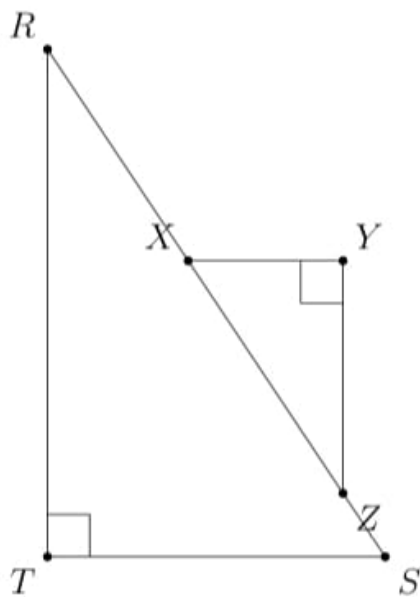
A right square pyramid has a surface area of $64 + 16\sqrt{457}$ square inches, which includes a base area of 64 square inches. What is the height, in inches, of this pyramid?

Answer:

A certain investment account offers a special interest rate for the first 6 months the account is open followed by a lower interest rate for the remainder of the time the account is open. Bennett opened one of these accounts with an original account balance of \$600 and did not make any other deposits or withdrawals. 6 months after Bennett opened the account, the balance had increased by 0.4% of the original balance. 8 months after Bennett opened the account, the balance had increased by an additional 0.3% of the balance at the end of the first 6 months. Every 2 months after the first 8 months, the balance had increased by an additional 0.3% of the balance 2 months before. Which of the following equations could represent the account balance $B(x)$, in dollars, x months after the account was opened, where $x \geq 6$?

- A. $B(x) = 602.40(1.003)^{x/2-6}$
- B. $B(x) = 602.40(1.003)^{x/2-6/2}$
- C. $B(x) = 602.40(1.003)^{2x-12}$
- D. $B(x) = 602.40(1.003)^{2x-6}$

In the xy -plane, line r passes through the points $(3, 12)$ and $(7, 13)$. Line s passes through the point $(1, 2)$ and is perpendicular to line r . An equation of line s is $ax + 7y = c$, where a and c are constants. What is the value of c ?



In triangles RST and XYZ shown, XY is parallel to TS and $\tan R = \frac{180}{299}$. What is the value of $\sin X$ in triangle XYZ ?

- A. $\frac{299}{349}$
- B. $\frac{180}{349}$
- C. $\frac{180}{479}$
- D. $\frac{299}{180}$

The expression $6x^4 + px^2 + 126$ is equivalent to $j(3x^2 + n)(x^2 + k)$ where j , n , p , and k are integers. Which of the following cannot be an integer?

A) $\frac{n}{j}$

B) $\frac{n}{k}$

C) $\frac{p}{j}$

D) $\frac{k}{n}$

For the given equation below, which of the following expressions is equal to s?

$$10qrt - 2qrs + 8rts = 0$$

A) $\frac{10qrt}{qr-4rt}$

B) $\frac{5qrt}{qr+4rt}$

C) $\frac{5qrt}{qr-4rt}$

D) $-\frac{5qrt}{qr-4rt}$

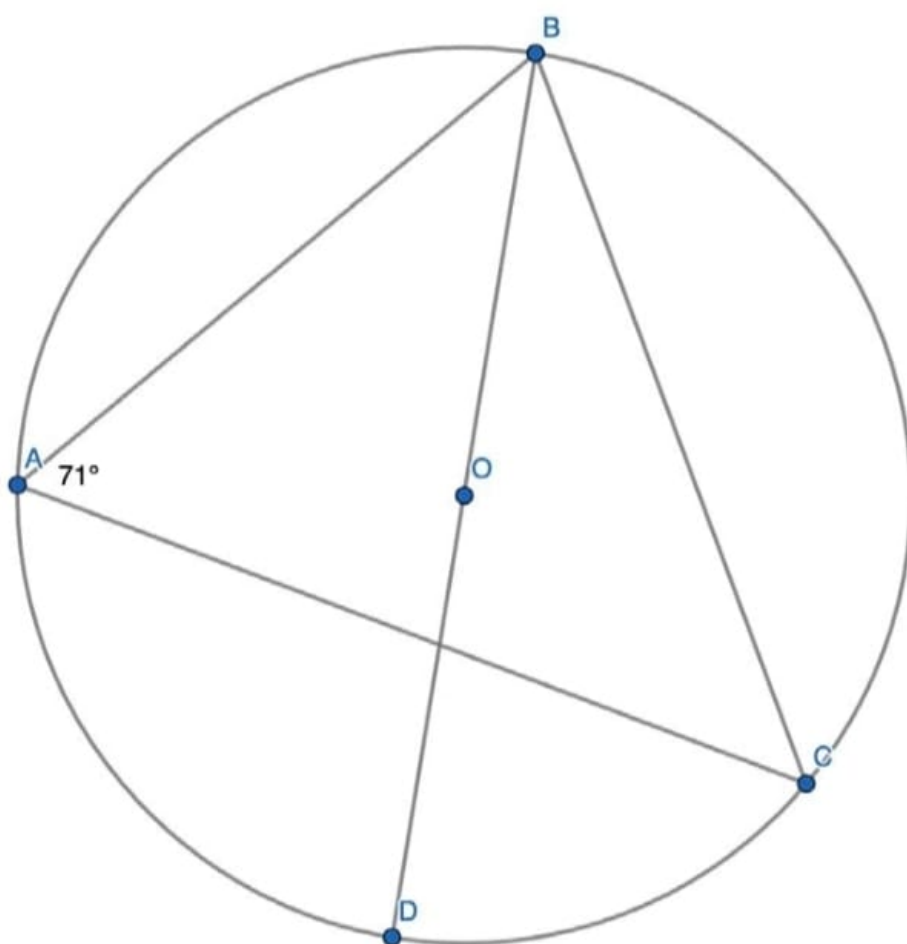
The equation for a circle is listed below. Find the expression for the radius in terms of a , which is a constant.

$$x^2 - 2ax + y^2 - 6y - 14a = 40$$

- A) $a - 7$
- B) $a + 7$
- C) $(a - 7)^2$
- D) $(a + 7)^2$

For n and k as positive constants greater than 1, $n^{\frac{5}{3}} = k^{\frac{3}{2}}$. For what value of a , is k equal to n^{2a+1} ?

9. In the diagram below, point O is the center of the circle, BD is a diameter, and $AC = BC$. Find the measure of angle DBA .



In the following equation, $\frac{1}{xz} + \frac{1}{5xy} = \frac{1}{3xyz}$ x , y , and z are positive. Solve the equation for y .

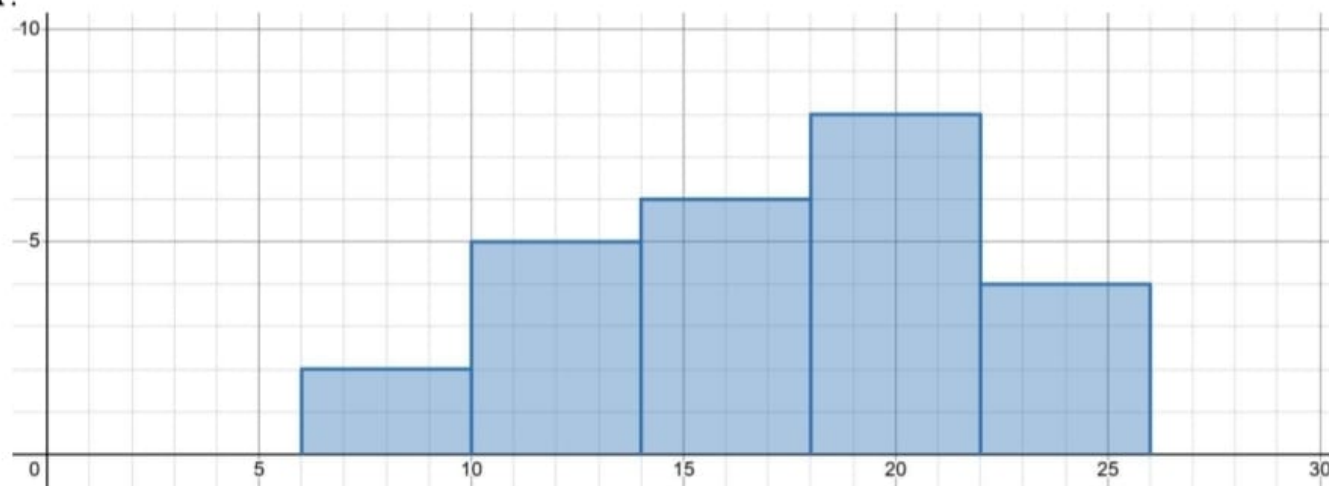
A) $y = \frac{5-z}{15}$

B) $y = \frac{5+3z}{15}$

C) $y = \frac{5-3z}{15}$

D) $y = \frac{xz}{3xz-5x}$

Data Set A has the number of points scored by a player on a basketball team from 25 different games and is shown in the histogram below. The mean of Data Set A is 16.72 points. Data Set B is formed by removing a single value of 17 from Data Set A. Which of the following must change for Data Set B compared to Data Set A?



- A) Mean only
- B) Median Only
- C) Both Mean & Median
- D) Not enough information to determine

A quadratic function $g(x)$ has a vertex of $(5, -10)$, goes through the point $(1, -42)$, and has a y-intercept of $(0, a)$. Another function, $h(x)$, is constructed by multiplying the y-coordinate of each point on $g(x)$ by 6, and has a y-intercept of $(0, b)$. Find the value of $a - b$.

If $r(x) = 8(x - 2)$ and $p(x) = x^3 + nx^2 + 2nx + 8$, then $r(x) * p(x) = 8(x^4 - 16)$ where n is an integer constant. What is the value of n ?

The equation, $3x^2 + 18x - 26 = 0$, has a solution of $x = m + \frac{\sqrt{n}}{3}$, where m & n are integer constants. Find the value of $m + n$.

The function $f(x) = \frac{x^2 - bx + c}{(x+4)(x+17)}$ passes through the points $(0, \frac{5}{2})$ and $(10, 0)$. What is a possible value of q if $f(q) = 0$?

- A) -17
- B) -7
- C) 7
- D) 17

Triangles ABC and DEF are similar where each side of ABC is four times the length of its corresponding side in DEF . The length of $AB = 40$ cm, the length of $BC = 20$ cm, the length of DE is a cm, and the length of EF is b cm. Find the value of $a + b$.

The system of equations below has a solution (x, y) where $x = \frac{p}{9}$ and $y = \frac{q}{9}$. What is the value of $p + q$?

$$10x - 2y = 20$$

$$4x + 19y = 30$$

The data set below is listed in ascending order where a , b , and c are constants. The mean is 34, the median is 32, and the range is 65. What is the value of c ?

$$a, 25, 28, b, 40, 42, c$$

Solve the following equation for b , where b , c , and d are constants and $d > \frac{4}{9}c$

$$b^2 + 4c = 9d$$

- A) $b = 9d + 4c$
- B) $b = 9d - 4c$
- C) $b = \pm\sqrt{9d + 4c}$
- D) $b = \pm\sqrt{9d - 4c}$

Triangle XYZ has three angles which measure x , y , and z degrees, respectively. The measure of angle Z is 32 degrees and $x > y > z$. Which of the following values is not sufficient to identify the measure of all three angles in the triangle?

- A) $32 - x - 3y$
- B) $32 - 3x - 3y$
- C) $32 + 3x - 3y$
- D) $32 + x - 3y$

3. An exponential function, $f(x)$, increases by 140% when x increases by $\frac{1}{3}$. Which function below represents this situation?

A) $f(x) = (1.4)^{3x}$

B) $f(x) = (1.4)^{\frac{x}{3}}$

C) $f(x) = (2.4)^{3x}$

D) $f(x) = (2.4)^{\frac{x}{3}}$

For the two functions listed below, $f(x)$ and $g(x)$, a and b are constants where $a > 1$ and $a < b$. When graphed, which displays the minimum value of the function as a constant or coefficient when $x \geq 0$?

I. $f(x) = a(.19)^{-bx}$

II. $g(x) = a(1.81)^{x+2} + b$

A) I only

B) II only

C) Both I and II

D) Neither I or II



Which expression is a factor of $36x^2(x+12) - 36(x+12)^3$?

(A) $-12x + 144$

(B) $2x + 12$

(C) $6x + 6$

(D) $24x - 144$

Problem 45

The binomial $x + 13y$ is a factor of which of the following?

- A. $x^2 + 14xy + 13y^2$
- B. $x^2 + 14xy + 14y^2$
- C. $x^2 + 39xy + 39y^2$
- D. $x^2 + 28xy + 42y^2$

The function $f(x) = 18(2.4)^{\frac{x}{2}}$. For every increase in x by 4, the value of $f(x)$ increases by $p\%$. For which functions below, where n is a positive constant, does the value of $g(x)$ also increase by $p\%$ for an increase of x by 1?

A) $g(x) = n(2.4)^x$

B) $g(x) = n(4.76)^x$

C) $g(x) = n(5.76)^x$

D) $g(x) = n(13.824)^x$

Review Question 18



Point O is the center of a unit circle in the xy -plane, and its coordinates are $(0,0)$. Point A lies on the unit circle, and its coordinates are $(0,1)$. Point P on the unit circle is obtained by rotating point A

$$\frac{7\pi}{6}$$

radians about the origin in the counterclockwise direction. What are the coordinates of point P ?

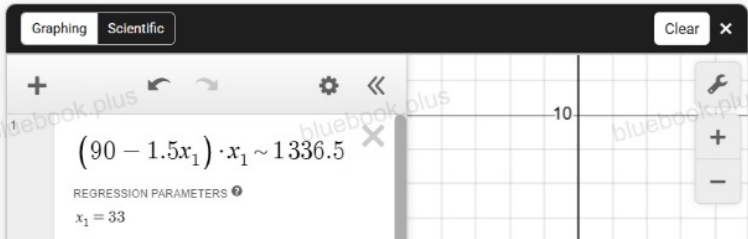
☐ (A) $(-\frac{\sqrt{3}}{2}, -\frac{1}{2})$

☒ (B) $(-\frac{1}{2}, -\frac{\sqrt{3}}{2})$

☐ (C) $(-\frac{\sqrt{3}}{2}, \frac{1}{2})$

☐ (D) $(\frac{1}{2}, -\frac{\sqrt{3}}{2})$

A company developed a plan to set the selling price of a product. The company determined that for a selling price of **\$90.00**, zero products would be sold. For each **\$1.50** decrease in the selling price, the number of products sold would increase by one. For a revenue of exactly **\$1,336.50**, which of the following could be the number of products sold? (revenue = price $\times$ number of products sold)



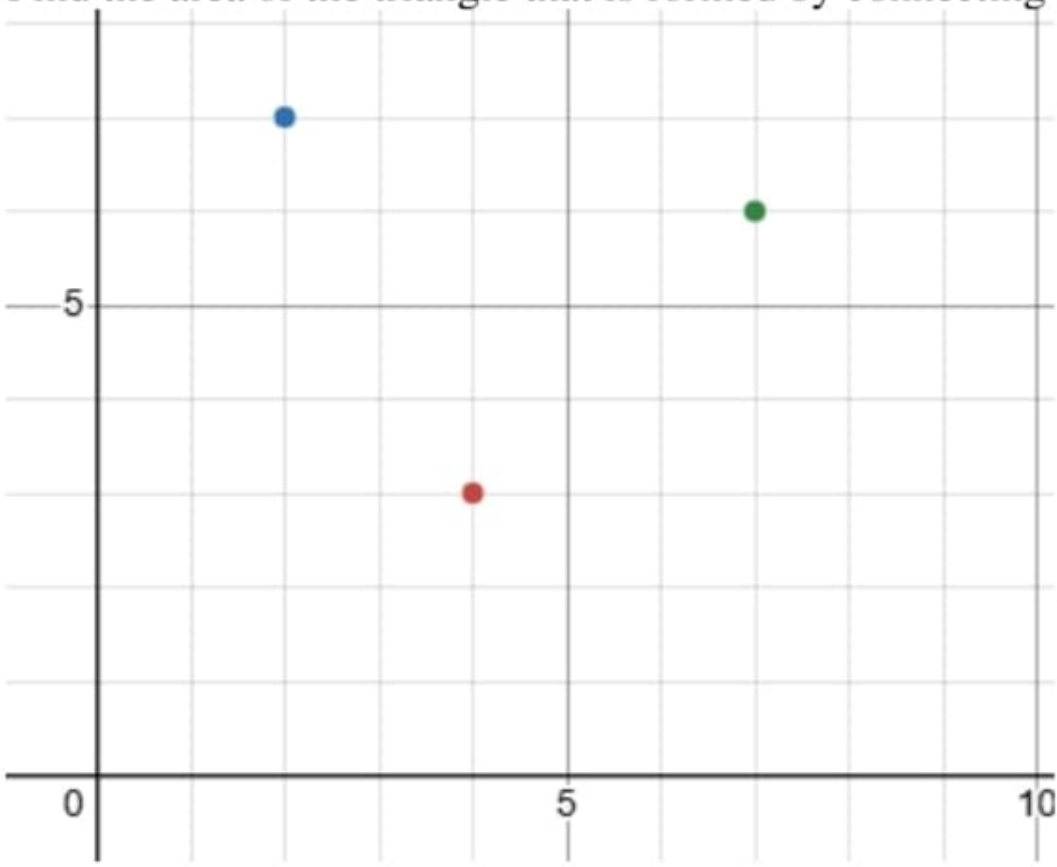
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Mark for Review

- (A) 27
- (B) 30
- (C) 831
- (D) 1,350

The equation $4x^2 + py + w = 91$, where p is an integer constant, has one real solution. What must be the value of w ?

Find the area of the triangle that is formed by connecting the 3 points shown below.



$$f(x) = ax^2 - 7x + c$$

The function f is defined above, where a and c are constants. The graph of $y = f(x)$ is a parabola that has a vertex at the point (h, k) , where h and k are constants. If $f(-9) = f(-2)$ and $c > 0$, which of the following must be true?

I. $a < -\frac{3}{4}$

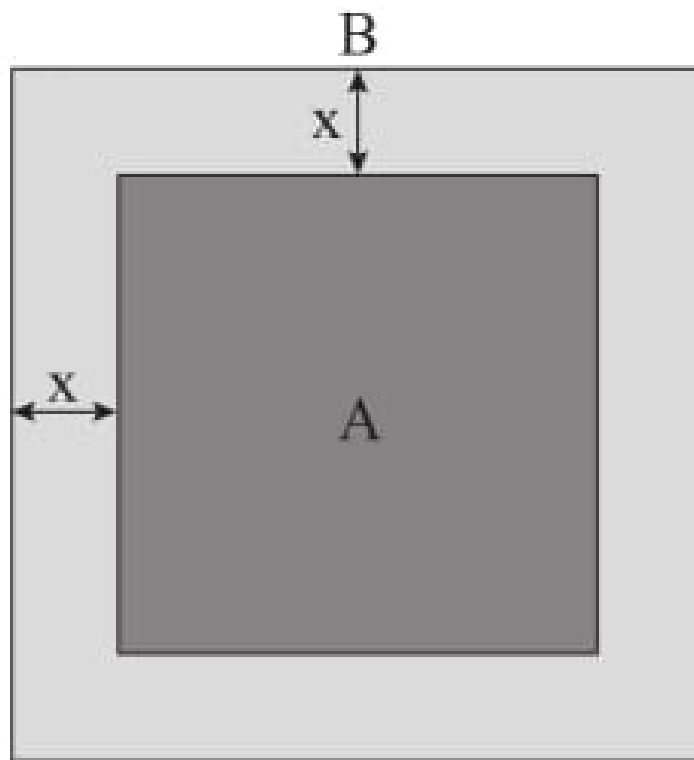
II. $k > 16$

A) I only

B) II only

C) I and II

D) Neither I nor II



Rectangle A has a width of 50 feet and a length of 45 feet and is located inside rectangle B. A uniform distance x , in feet, separates the sides of rectangle A from rectangle B. The area of rectangle B is 2646 square feet, what is the value of x ?

In the xy -plane, a circle has center D with coordinates $(m, 16)$, where m is a constant. Points E and F lie on the circle. Point E lies on the circle and has coordinates $(m + 4\sqrt{10}, 34)$, and point F has coordinates $(n, 16)$, where n is a constant greater than m . What is the area, in square units, of triangle DEF ?

- A) 198
- B) $72\sqrt{10}$
- C) 242
- D) $99\sqrt{10}$

$$\frac{1}{cx} = \frac{x}{148} + \frac{1}{c}$$

In the given equation, c is a constant. If the equation has exactly one solution, what is the value of c ?