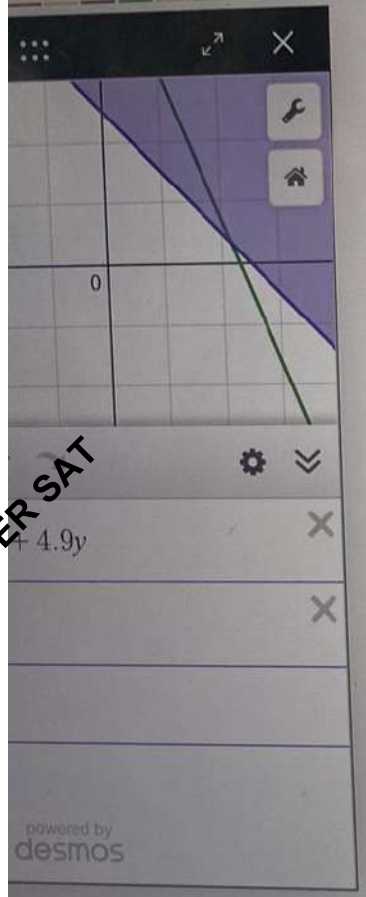
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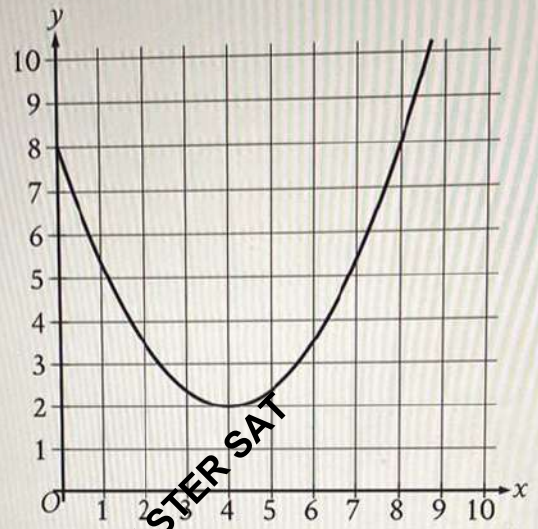
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The graph shows a toy car's height above the ground y, in inches, x seconds after it started moving on an elevated track. Which of the following is the best interpretation of the y-intercept of the graph?

(A) The toy car's height was 0 inches above the ground 8 seconds after it started moving.

(B) The toy car's height was 8 inches above the ground when it started moving.

(C) The toy car's minimum height was 0 inches above the ground.

(D) The toy car's minimum height was 8 inches above the ground.

Question 1 of 22

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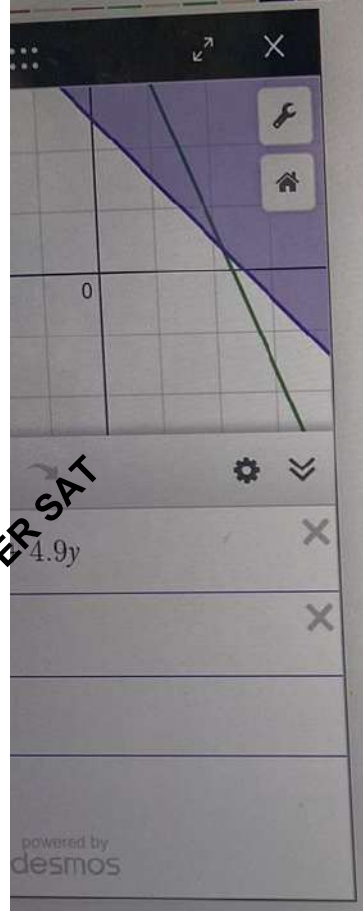
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2 Mark for Review

A jar has 550 marbles, and 20% of these marbles are orange. How many marbles in the jar are orange?

(A) 110

(B) 220

(C) 275

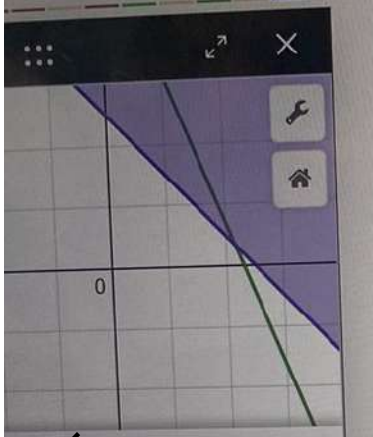
(D) 530

Question 2 of 22

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3 Mark for Review

The function k is defined by $k(x) = x^3 + 1{,}000$. What is the value of $k(x)$ when $x = 2$?

(A) 1,008

(B) 1,006

(C) 1,005

(D) 1,000

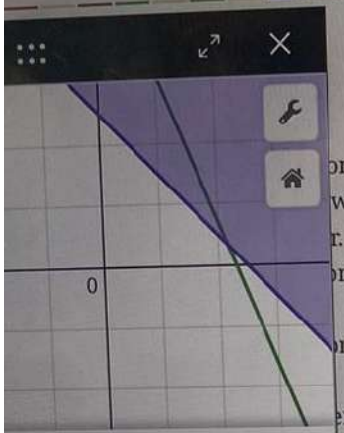
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4 Mark for Review

Sophia bought confetti and balloons for $55. Each package of confetti cost $2, and each balloon cost $1. If Sophia bought 10 packages of confetti, how many balloons did she buy?

35

Answer Preview: 35

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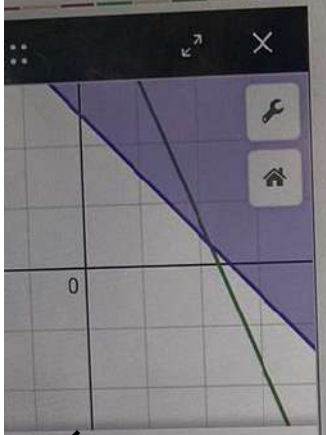
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5 Mark for Review

$$f(x) = 8x + 6$$

The function f gives the estimated height, in feet, of a poplar tree x years after its height was first measured. Which statement is the best interpretation of 6 in this context?

(A) The tree will be measured each year for 6 years.

(B) The tree is estimated to grow to a maximum height of 6 feet.

(C) The estimated height of the tree increased by 6 feet each year.

(D) The estimated height of the tree was 6 feet when it was first measured.

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Calculator Reference More

6 Mark for Review

The function g is defined by $g(x) = -15 - 6x$. For what value of x does $g(x) = -183$?

(A) -33

(B) 28

(C) 33

(D) 1,083

Question 6 of 22

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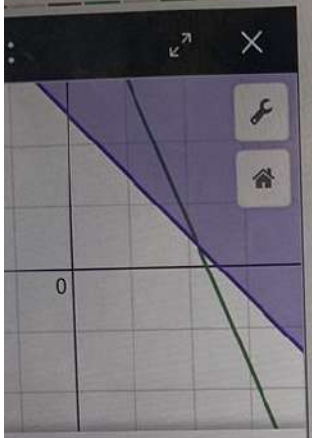
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7 Mark for Review

For the linear function f, $f(0) = 0$ and $f(15) = 5$. Which equation defines f?

(A) $f(x) = \frac{x}{5}$

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

(C) $f(x) = x + 3$

(D) $f(x) = x + 5$

Question 7 of 22

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Calculator Reference Me

8 Mark for Review

$$4(y-15)+11=3(y-15)+11$$

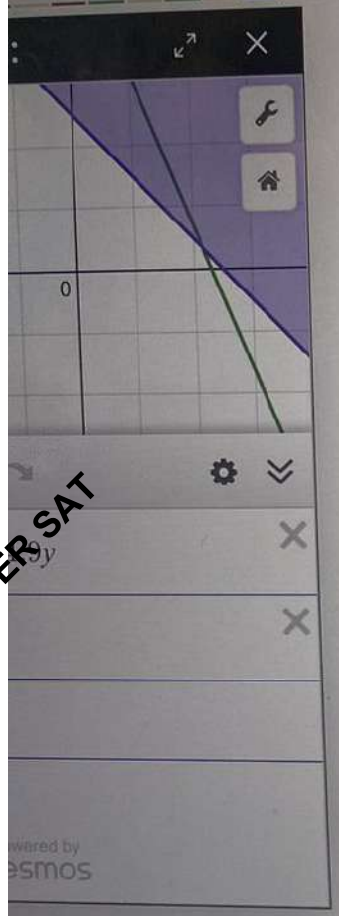
What value of y is the solution to the given equation?

(A) 0

(B) 1

(C) 11

(D) 15



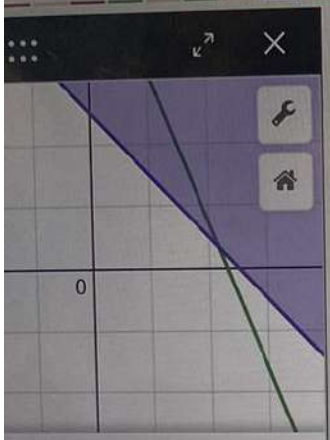
Question 8 of 22

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MASTER SAT



9 Mark for Review

Which expression is equivalent to $(d-7)(8d^2-5)$?

(A) $8d^3-15d^2-5d+35$

(B) $8d^3-20d^2+56$

(C) $8d^3-56d^2-5d+35$

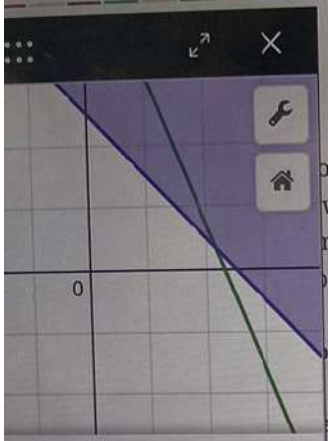
(D) $8d^3-61d^2+56$

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10 Mark for Review

A small business owner budgets $2,700 to purchase books each year. The owner must purchase a minimum of 250 books for the year to maintain the discounted pricing. If the owner pays $4.90 per book to purchase paperback books and $11.70 per book to purchase hardcover books, what is the maximum number of hardcover books the owner can purchase to stay within the budget and maintain the discounted pricing?

Answer Preview:

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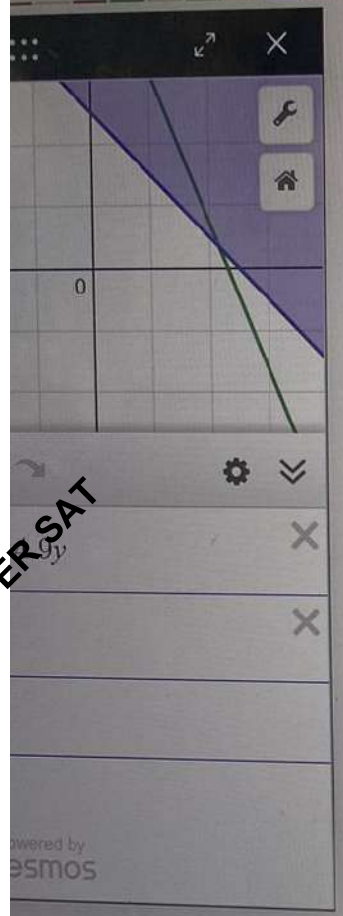
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11 Mark for Review

The function h is defined by $h(x) = -16x + \frac{7}{6}$. What is the slope of the graph of $y = h(x)$ in the xy-plane?

(A) -16

(B) $-\frac{7}{6}$

(C) $\frac{7}{6}$

(D) 16

Question 11 of 22

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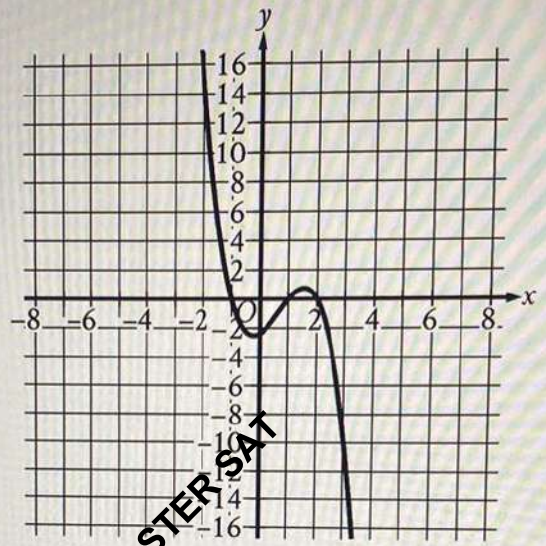
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12 Mark for Review



The graph of $y = f(x)$ is shown, where the function f is defined by $f(x) = ax^3 + bx^2 + cx + d$ and a, b, c, and d are constants. For how many values of x does $f(x) = 0$?

(A) One

(B) Two

(C) Three

(D) Four

Question 12 of 22

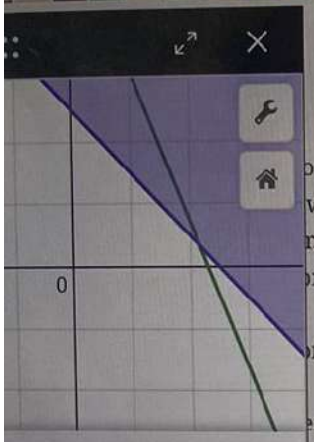
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13 Mark for Review

$$104x + 78y = 65$$

One of the equations in a system of two linear equations is given. The system has infinitely many solutions. If the second equation in the system is written as $Ax + By = C$, where A, B, and C are constants, what is the value of $\frac{A+C}{B}$?

Answer Preview:

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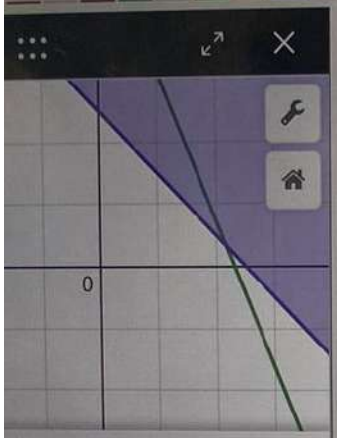
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14 Mark for Review

If $x > 0$ and x is 41% of y, which expression represents y in terms of x?

(A) $\frac{100}{41}x$

(B) $\frac{10}{41}x$

(C) $\frac{1}{41}x$

(D) $\frac{59}{100}x$

Question 14 of 22

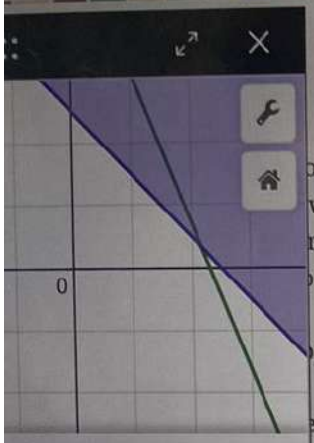
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15 Mark for Review

$$f(x) = -(x-4)^2 + 10$$

The function f is defined by the given equation. For what value of x does $f(x)$ reach its maximum?

Answer Preview

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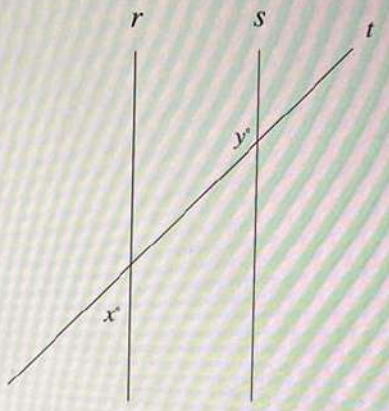
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16 Mark for Review



Note: Figure not drawn to scale.

In the figure shown, line r is parallel to line s, and both lines are intersected by line t. If $x = 2w + 22$, $y = 6w + 27$, and $8w = a$, where a is a constant, what is the value of a?

Answer Preview:

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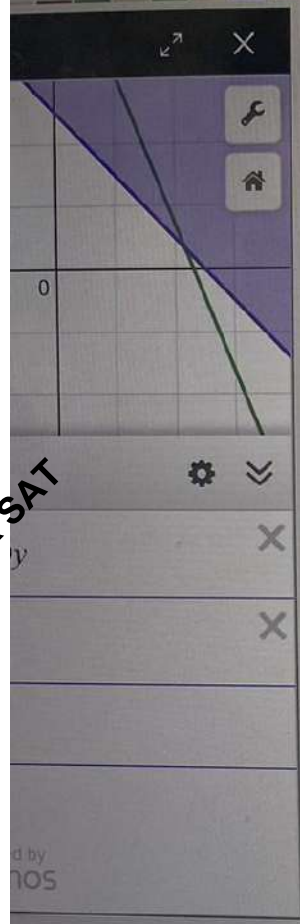
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17 Mark for Review

On January 1, there were 231 views of a video posted on a social media site. Every 2 days after January 1, the number of views of the video had increased by 70% of the number of views 2 days earlier. The function f gives the predicted number of views x days after January 1. Which equation defines f?

(A) $f(x) = 231(0.70)^{\frac{x}{2}}$

(B) $f(x) = 231(0.70)^{2x}$

(C) $f(x) = 231(1.70)^{\frac{x}{2}}$

(D) $f(x) = 231(1.70)^{2x}$

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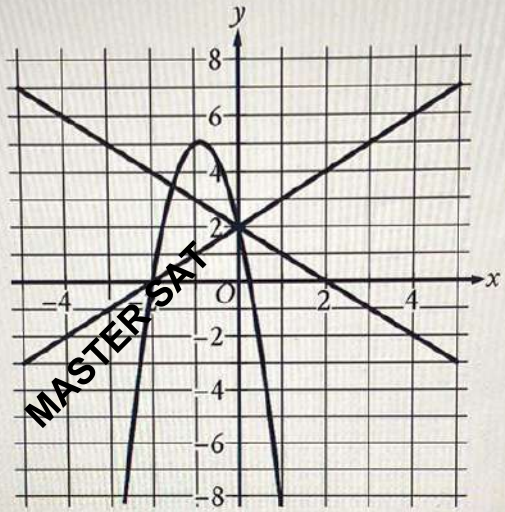
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Calculator | Reference | More

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18 Mark for Review



The graph of a system of three equations is shown. The system consists of two linear equations and one quadratic equation. How many solutions does this system have?

(A) 1

(B) 2

(C) 3

(D) 4

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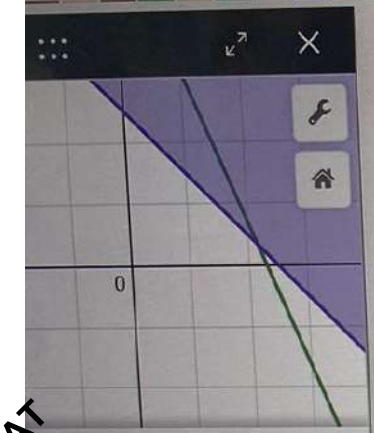
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$+ 4.9y$

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19 Mark for Review

What is the value of $\tan \frac{26\pi}{3}$?

(A) $-\sqrt{3}$

(B) $-\frac{\sqrt{3}}{3}$

(C) $\frac{\sqrt{3}}{3}$

(D) $\sqrt{3}$

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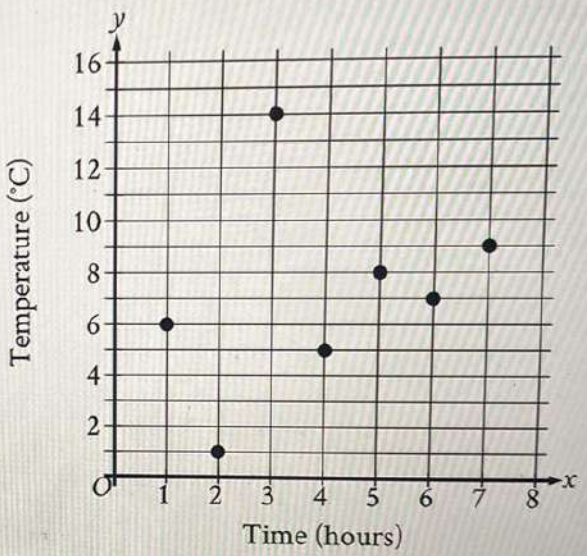
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20 Mark for Review

During an experiment, the temperature, in degrees Celsius (°C), of a mixture was recorded to the nearest integer at certain times. The scatterplot shows the recorded temperature y, in °C, of the mixture x hours after the start of the experiment.



What was the average rate of change of the recorded temperature of the mixture over time, in °C per hour, from $x = 1$ to $x = 3$?

Answer Preview:

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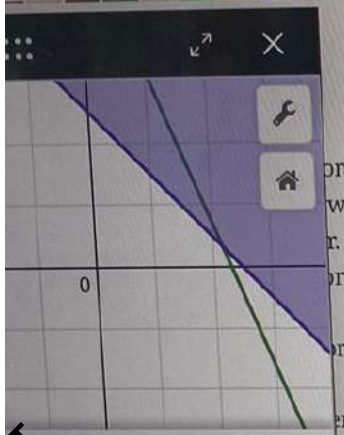
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21 Mark for Review

$$(x-8)-5(y+6)=130$$
$$(x-8)+5(y+6)=435$$

The solution to the given system of equations is (x, y). What is the value of $4(x-8)$?

Answer Preview:

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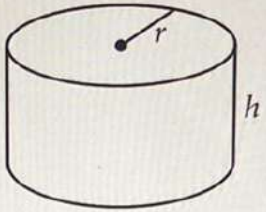
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22 Mark for Review



The figure shown is a right circular cylinder with a radius of r and height of h. A second right circular cylinder (not shown) has a volume that is 324 times as large as the volume of the cylinder shown. Which of the following could represent the radius R, in terms of r, and the height H, in terms of h, of the second cylinder?

(A) $R = 9r$ and $H = 6h$

(B) $R = 9r$ and $H = 36h$

(C) $R = 6r$ and $H = 9h$

(D) $R = 36r$ and $H = 9h$

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MATH MODULE 2

MASTER SAT

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Calculator | Reference

1 Mark for Review

The ratio of the base to the height of a triangle is 1 to 8. The base of the triangle is 152 centimeters. What is the height, in centimeters, of the triangle?

(A) 19

(B) 76

(C) 152

(D) 1,216

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Calculator Reference More

2 Mark for Review

$q(x) = 24(3^x)$

Which table gives three values of x and their corresponding values of $q(x)$ for function q?

(A)

x	-1	0	1
$q(x)$	8	24	72

(B)

x	-1	0	1
$q(x)$	$\frac{1}{8}$	24	72

(C)

x	-1	0	1
$q(x)$	$\frac{1}{8}$	3	72

(D)

x	-1	0	1
$q(x)$	-72	0	72

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3 Mark for Review

A plant nursery classifies a perennial flower species as tall if its typical height when fully grown is more than 100 centimeters. Each of the following inequalities represents the possible heights h, in centimeters, for a specific perennial flower species when fully grown. Which inequality represents the possible heights h, in centimeters, for a tall perennial flower species?

(A) $12 < h < 92$

(B) $48 < h < 88$

(C) $83 < h < 100$

(D) $108 < h < 150$

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Calculator Reference More

4 Mark for Review

A linear function f gives a company's profit, in dollars, for selling x items. The company's profit is $\$230$ when it sells 5 items, and its profit is $\$580$ when it sells 10 items. Which equation defines f?

(A) $f(x) = 170x - 580$

(B) $f(x) = 58x$

(C) $f(x) = 70x - 10x$

(D) $f(x) = 70x - 120$



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5 Mark for Review

Each year, the value of an investment increases by 0.67% of its value the previous year. Which of the following functions best models how the value of the investment changes over time?

(A) Decreasing exponential

(B) Decreasing linear

(C) Increasing exponential

(D) Increasing linear

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6 Mark for Review

Line p in the xy-plane is defined by $y = x + \frac{4}{9}$ and passes through the points $(a, 0)$ and $(0, b)$, where a and b are constants. What is the value of a?

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7 Mark for Review

$$\frac{17x}{x^2-1} = \frac{x}{x-1} + \frac{16}{x+1}$$

What is the positive solution to the given equation?

Answer Preview:

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Calculator

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8 Mark for Review

How many solutions does the equation $9(x+14)+5x=14(x+9)$ have?

(A) Exactly one

(B) Exactly two

(C) Infinitely many

(D) Zero

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Calculator Reference

9 Mark for Review

In right triangle RST, the sum of the measures of angle R and angle S is 90 degrees. The value of $\sin(R)$ is $\frac{2\sqrt{10}}{7}$. What is the value of $\cos(S)$?

(A) $\frac{3\sqrt{10}}{20}$

(B) $\frac{2\sqrt{10}}{7}$

(C) $\frac{7\sqrt{10}}{20}$

(D) $\frac{2\sqrt{10}}{3}$

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Calculator | Reference | More

10 Mark for Review

The manager of a gym selected a sample of 137 members at random to estimate the percentage of the gym's members that would continue to pay for a membership if the price increased. From the survey, the manager estimates that 82% of the gym's members would continue to pay for a membership if the price increased, with an associated margin of error of 6.43%. If the survey is repeated with a random sample of 274 members and the results are calculated in the same way, which of the following will be the most likely effect of using the larger random sample compared to the smaller random sample?

(A) The margin of error will be lower.

(B) The margin of error will be higher.

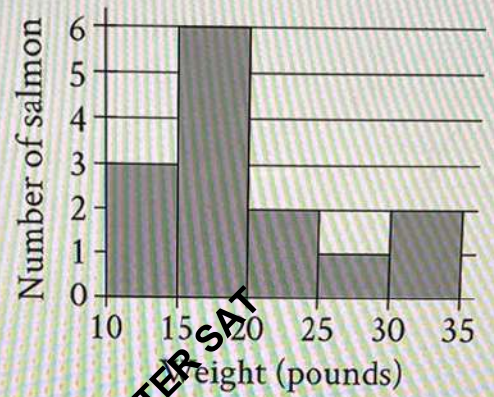
(C) The estimate of the percentage of the gym's members that would continue to pay for a membership if the price increased will be lower.

(D) The estimate of the percentage of the gym's members that would continue to pay for a membership if the price increased will be higher.

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Calculator Reference More

11 Mark for Review



The histogram summarizes a data set of the weights, in pounds, of 14 salmon. If an additional weight of 78 pounds is added to the original data set to create a new data set of 15 weights of salmon, which of the following measures must be greater for the new data set than for the original data set?

I. The median
II. The mean

(A) I only

(B) II only

(C) I and II

(D) Neither I nor II

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12 Mark for Review

x	y
-13	48
a	3
3	b

The table shows three values of x and their corresponding values of y, where a and b are constants. There is a linear relationship between x and y. In the xy-plane, the y-intercept of the line representing this relationship is $(0, -17)$. What is the value of $a + b$?

(A) -47

(B) -46

(C) -37

(D) -36

Question 12 of 22

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13 Mark for Review

$$(x+k)^2+45=45$$

In the given equation, k is a constant. How many distinct real solutions does this equation have?

(A) Zero

(B) Exactly one

(C) Exactly two

(D) Infinitely many

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14 Mark for Review

For a certain circuit, its power P, in watts; current C, in amperes; voltage V, in volts; and resistance R, in ohms, are related as $\frac{CV^2}{P} = \sqrt{PR}$, where P, C, V, and R are positive. When $R = 41$, which equation correctly expresses P in terms of C and V?

(A) $P = \frac{CV^2}{\sqrt{41}}$

(B) $P = \frac{CV^2}{\sqrt{41P}}$

(C) $P = \sqrt[3]{\frac{41}{C^2V^4}}$

(D) $P = \sqrt[3]{\frac{C^2V^4}{41}}$

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$$y < -6x - 21$$

$$y > -4x - 9$$

For which of the following tables are all the values of x and their corresponding values of y solutions to the given system of inequalities?

(A)

x	y
-7	17
-8	37
-10	-4

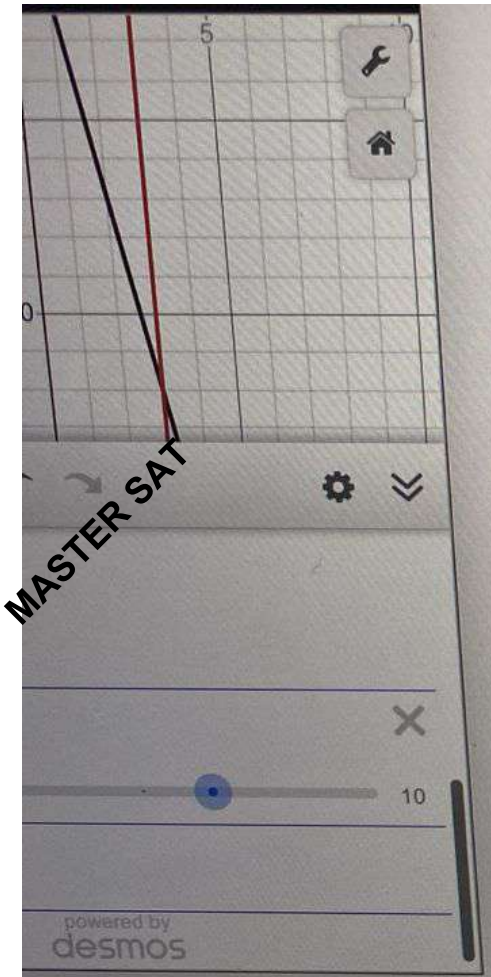
(B)

x	y
-7	21
-8	25
-10	-4

(C)

x	y
-7	18
-8	25

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B

x	y
-7	21
-8	25
-10	-4

C

x	y
-7	18
-8	25
-10	37

D

x	y
-7	20
-8	26
-10	37

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16 Mark for Review

A rectangular region of land is divided into 88 square lots of equal area R, in square units. The length of the region is 5.5 times the width of the region. If the width of the region is $x\sqrt{R}$ units, what is the value of x?

Answer Preview:

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Calculator Reference More

17 Mark for Review

A circle is inscribed in a square such that the circumference of the circle touches the midpoint of each side of the square. The length of the diagonal of the square is 136 units. What is the area, in square units, of the circle?

(A) $2{,}312\pi$

(B) $4{,}624\pi$

(C) $9{,}248\pi$

(D) $18{,}496\pi$

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18 Mark for Review

The expression kx represents the result of decreasing a positive force, x, acting on an object by 0.42%. What is the value of k?

Answer Preview:

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19 Mark for Review

A polygon has exactly 57 sides. If the measure of each of the 57 interior angles of this polygon is $(180p)^\circ$, what is the value of p?

Answer Preview:

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20 Mark for Review

The function $f(n) = 7(20.41)^{\frac{n}{5}}$ gives each term of a sequence as a function of the term's position, n, in the sequence, where n is a whole number. The value of the term in position 15 is $p\%$ more than the value of the term in position 10. What is the value of p?

(A) 20.41

(B) 41

(C) 1,941

(D) 2,041

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21 Mark for Review

A right square pyramid has a total surface area of 18,816 square inches, and the combined surface area of the four lateral faces of this pyramid is 9,600 square inches. What is the height, in inches, of this pyramid?

(A) 14

(B) 48

(C) 50

(D) 96

Calculator Reference More

22 Mark for Review

The expression $6x^4 + 23x^2 + 7$ 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 $a + c$?

Answer Preview:

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