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Module
1

2

35:00

Section 2, Module 1: Math



1

Mark for Review

 $\frac{36}{x} = 4$. What is the value of x ?

- (A) 4
- (B) 6
- (C) 8
- (D) 9

TESTQUBE

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Section 2, Module 1: Math



3

Mark for Review

The function f is defined by $f(x) = 4x^2 + 2$. What is the value when $f(\frac{1}{2})$?

- (A) 1
- (B) 3
- (C) 5
- (D) 6

TESTQUBE

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Section 2, Module 1: Math



2

Mark for Review

What is 120% of 80?

- (A) 64
- (B) 72
- (C) 96
- (D) 176

TESTQUBE

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Section 2, Module 1: Math



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Mark for Review

 $y > 3x + 5$ If the value of x is -2 , which value of y satisfies the inequality above?

- (A) -5
- (B) -3
- (C) -1
- (D) 2

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Mark for Review

Jason works at a car dealership where his monthly wage fluctuates depending on the number of cars he sells each month. His wage is calculated using the formula $y = 30x + 110$, where 30 represents the commission he receives for selling one car. What does the value 110 represent in this formula?

- (A) The number of times he sold a car to his customers ☐
- (B) The minimum wage he receives every month ☐
- (C) The hours he spends per month working at the dealership ☐
- (D) The amount of money it takes to sell one car ☐

TEST QUBE

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Mark for Review

$x^2 + 4xy + 4y^2 = 16$. What is one possible value for $x + 2y$?

- (A) 4 ☐
- (B) 8 ☐
- (C) 64 ☐
- (D) 256 ☐

TEST QUBE

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6

Mark for Review

If a car travels 60 miles in 1 hour, what is its average speed in feet per second? (1 mile = 5280 feet)

- (A) 12 ☐
- (B) 44 ☐
- (C) 88 ☐
- (D) 5280 ☐

TEST QUBE

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Mark for Review

If the first integer is 3 more than twice the second integer, and the sum of the two integers is 24, what is the value of the second integer?

- (A) 3 ☐
- (B) 5 ☐
- (C) 7 ☐
- (D) 11 ☐

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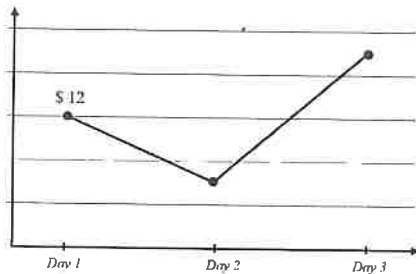


9

Mark for Review

Astra, a company renowned for specializing in space travel technology, experienced a tumultuous week with various news events impacting its stock price. The stock began the week at \$12. However, on the second day, the price dipped by 7 percent due to negative news. Fortunately, on the third day, positive forecasts led to a 12 percent increase in the stock price. Which answer is closest to the stock's final price at the end of the third day?

Stock Price: ASTRA



- (A) \$11.50
- (B) \$12.50
- (C) \$14.50
- (D) \$17.00

TEST QUBE

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Mark for Review

$$\frac{1 - \frac{3}{x}}{x - \frac{9}{x}}$$

Which of the following equation is equivalent to the expression shown above?

- (A) $\frac{1}{x-3}$
- (B) $\frac{x-3}{x+3}$
- (C) $\frac{1}{x+3}$
- (D) $\frac{x+3}{x^2-9}$

TEST QUBE

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Mark for Review

What is the equation of a circle with center (2, 3) and radius of 5?

- (A) $(x+2)^2 + (y+3)^2 = 5$
- (B) $(x+2)^2 + (y+3)^2 = 25$
- (C) $(x-2)^2 + (y-3)^2 = 5$
- (D) $(x-2)^2 + (y-3)^2 = 25$

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Mark for Review

There are 6 different types of marbles inside a bag. Dylan chooses one marble at random from the bag. What is the probability that Dylan grabs either a rough green marble or a blue marble?

	Red	Blue	Green
Smooth	4	2	3
Rough	2	7	6
Total	6	9	9

(A) 15/18

(B) 5/24

(C) 1/2

(D) 5/8

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13

Mark for Review

The expression $\sqrt[3]{\frac{a^{37}b^{40}c^{25}}{(abc)^{10}}}$ is equivalent to $a^x b^y c^z$, where x, y, z are positive constants. What is the value of $x + y + z$?

TESTQUBE

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Mark for Review

$$\begin{cases} y = 2x + 8 \\ y = 3px + 4 \end{cases}$$

The set of equations is given above. Find the value of p so that there are no solutions to the given system of equations.

(A) 1/2

(B) 4/5

(C) 2/3

(D) 1

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Mark for Review

A study is being conducted to assess the physical fitness of 100 high school seniors. One of the categories being quantitatively measured is the number of consecutive push-ups students can perform within a 2-minute time frame. The data is organized in a table with increments of 10. What is the median number of push-ups performed by the group, according to the table?

Number of Push-ups	10	20	30	40	50
Number of People	27	32	22	15	4

(A) 10

☐

(B) 20

☐

(C) 22

☐

(D) 32

☐

Section 2, Module 1: Math



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Mark for Review

What value satisfies the inequality below?

$$|x + 1| < 3$$

(A) -4

☐

(B) 0

☐

(C) 2

☐

(D) 3

☐

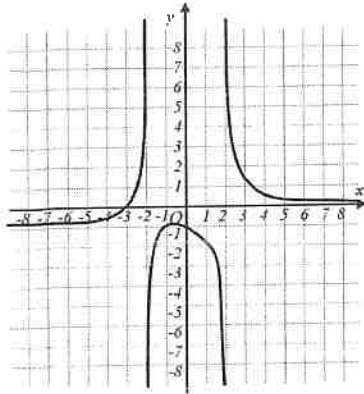
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Mark for Review

The rational function f is defined by an equation in the form of $f(x) = \frac{x+3}{x^2-4}$. How many values of x is not defined for $f(x)$?



(A) 0

(B) 1

(C) 2

(D) 3

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Mark for Review

For a right triangle with side lengths 6 and 8, what is a possible side length of the third side?

(A) 3

(B) $3\sqrt{5}$ (C) $2\sqrt{7}$

(D) 12

TEST QUBE

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Mark for Review

$$y = 3x^2 - 5x - 12$$

The given equations above is a polynomial function with two roots. If the values of the two roots are denoted as a and b , what is the value of ab ?

(A) -4

(B) -3

(C) 3

(D) 4

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Mark for Review

In Physics, there is a widely used formula in understanding the movement of a fluid. The equation, adapted from the founder himself, is called the Bernoulli's Equation. This equation is used to gain insight in the motion of a fluid, specifically related to the pressure, speed and height. Assuming that there is no static pressure, the formula can be expressed as follows. Which equation correctly expresses p in terms of h , v , c , and g ?

$$\frac{p}{2}v^2 + pgh = c$$

☐ (A) $p = \frac{2c}{v^2 + 2gh}$

☐ (B) $p = \frac{c}{gvh}$

☐ (C) $p = \frac{2c}{vgh + 2}$

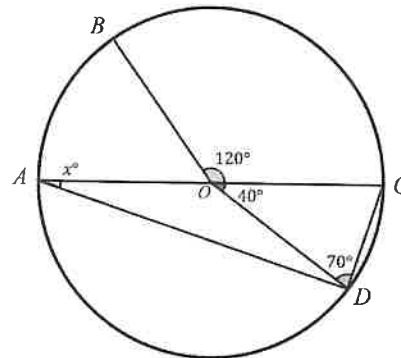
☐ (D) $p = \frac{gc}{v^2 + 2vh}$

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Mark for Review



Note: Figure Not Drawn to Scale

In the shown figure, the segment AC is the diameter of the circle with the center O . Also, $\angle BOC = 120^\circ$, $\angle COD = 40^\circ$, and $\angle CDO = 70^\circ$. Find the angle of x° .

☐ (A) 70°

☐ (B) 45°

☐ (C) 30°

☐ (D) 20°

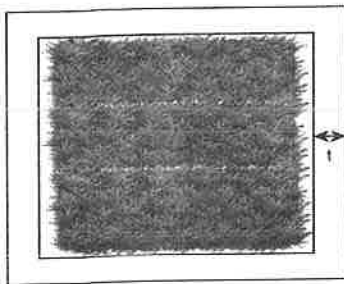
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22

Mark for Review

John is trying to decide what kind of fence he should use for his garden. The dimension of the garden is $10m \times 20m$ and John decides $10m^2$ to be the overall area of the fence. If the fence goes around the garden and is uniform in thickness, and the thickness is denoted as t in meters, what is the closest value of t ?

(A) $1.54m$ (B) $0.85m$ (C) $0.53m$ (D) $0.17m$ 