I

35:00

Section 2, Module 1: Math

Annotate

II

1 Mark for Review

If $4x + y = 10$, what is the value of $16x + 4y$?

(A) 10 (A)

(B) 20 (B)

(C) 40 (C)

III (D) 80 (D)

IV

TEST QUBE Question 1 of 22 >

Section 2, Module 1: Math

Annotate

V

2 Mark for Review

Shakil intends to buy a \$98 calculator and p pencils that cost \$2 each. He has a maximum of \$110 budget for his purchase. Which of the following inequalities best represents this situation?

VI

(A) $98 + 2p \leq 110$ (A)

(B) $2 + 98p \leq 110$ (B)

(C) $2p \leq 98$ (C)

(D) $110 + 2p \leq 98$ (D)

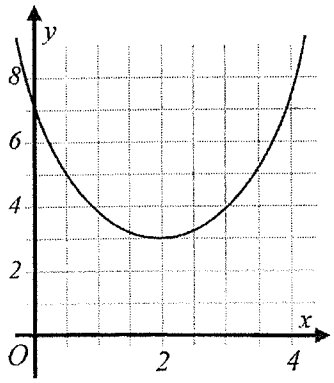
VII

TEST QUBE Question 2 of 22 >

Section 2, Module 1: Math

Annotate

3 Mark for Review



The graph of $y = f(x)$ is shown. What is the y-intercept of the graph?

(A) 2 (A)

(B) 7 (B)

(C) 12 (C)

(D) 17 (D)

TEST QUBE Question 3 of 22 > Back Next

Section 2, Module 1: Math

Annotate

4

Mark for Review

$PQ = 15$
$QR = 12$
$RP = 9$

The side lengths of a right triangle PQR is given. What is the value of angle R, in degrees?

TEST QUBE Question 4 of 22 >

Section 2, Module 1: Math

Annotate

5

Mark for Review

Function g is defined by $g(x) = \frac{1}{2}(x-3)^2 + 1$. The graph of $h(x)$ is generated by shifting the graph of $g(x)$ on the xy-plane by 3 units to the negative x direction. Which equation correctly defines $h(x)$?

(A) $h(x) = \frac{1}{2}(x^2 + 3)$

(B) $h(x) = \frac{1}{2}x^2 + 3$

(C) $h(x) = \frac{1}{2}x^2 + 1$

(D) $h(x) = \frac{1}{2-3}(x^2 - 3)$

TEST QUBE Question 5 of 22 >

Section 2, Module 1: Math

Annotate

6

Mark for Review

The equation $y = x - 8$ defines the relation between x and y. What is the x value when $y = 1$?

(A) 7

(B) 9

(C) -1

(D) -9

TEST QUBE Question 6 of 22 > Back Next

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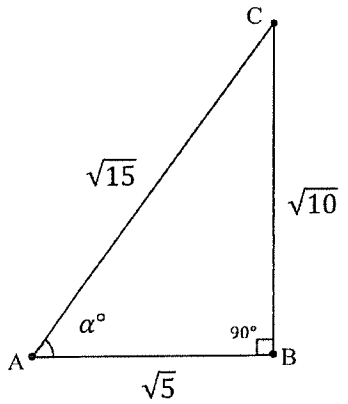
Section 2, Module 1: Math

Annotate

7

Mark for Review



Note: Figure Not Drawn to Scale

A right triangle ABC is shown, where α represents the value of angle A. What is the value of $\cos \alpha$?

(A) $\sqrt{5}$

(B) $\frac{\sqrt{5}}{\sqrt{15}}$

(C) $\sqrt{15}$

(D) $\frac{\sqrt{15}}{\sqrt{5}}$

TEST QUBE Question 7 of 22 >

Section 2, Module 1: Math

Annotate

8

Mark for Review

The standard English set of alphabets consists of 26 unique letters, of which exactly 5 (a, e, i, o, u) are vowels. What is the probability of randomly choosing a standard English letter that is not a vowel?

(A) $\frac{6}{26}$

(B) $\frac{11}{26}$

(C) $\frac{16}{26}$

(D) $\frac{21}{26}$

TEST QUBE Question 8 of 22 >

Section 2, Module 1: Math

Annotate

9

Mark for Review

Quadratic equation $x^2 - x + c = 0$ has two distinct real solutions when a constant real number c is less than k. What is the maximum value of k?

(A) 16

(B) 4

(C) $\frac{1}{2}$

(D) $\frac{1}{4}$

TEST QUBE Question 9 of 22 > Back Next

Section 2, Module 1: Math

Annotate

10

Mark for Review

Aniya found out that of 25 students in her class, there were twice as many students who had cats, c, as there were those who had dogs, d. There were no students who had both cats and dogs. s students, however, did not have cats or dogs. Which set of expressions best describes this context?

(A) $\begin{cases} s = 25 - d \\ s + d = c \end{cases}$ (A)

(B) $\begin{cases} s + d - c = 25 \\ d + 25 = c \end{cases}$ (B)

(C) $\begin{cases} c = 2d \\ s = 25 - (c + d) \end{cases}$ (C)

(D) $\begin{cases} c = 2d \\ s = 25 + (c + d) \end{cases}$ (D)

Section 2, Module 1: Math

Annotate

11

Mark for Review

$A(x)$ is defined as $A(x) = |x| - 4$. At how many different points do the graph of $A(x)$ and the x-axis intersect?

(A) 2 (A)

(B) 1 (B)

(C) 0 (C)

(D) Infinitely many (D)

Section 2, Module 1: Math

Annotate

12

Mark for Review

$L(x) = 130{,}000\,(1.1)^x$

$L(x)$ represents the total number of tree leaves in a certain area of forest on every July 15th, x years after 2020. How many more tree leaves does the area contain on July 15th, 2021, when compared to July 15th, 2020?

(A) 1,300 (A)

(B) 13,000 (B)

(C) 15,730 (C)

(D) 26,000 (D)

I

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Section 2, Module 1: Math

Annotate

13

Mark for Review

In an isosceles triangle DEF, both the values of angle E and angle F are 30 degrees. What is the value of angle D in radians?

(A) $\frac{\pi}{2}$ (A)

(B) $\frac{\pi}{3}$ (B)

(C) $\frac{2\pi}{3}$ (C)

(D) π (D)

TEST QUBE Question 13 of 22 >

Section 2, Module 1: Math

Annotate

14

Mark for Review

$P(1, 17), Q(3, 29)$

What is the slope of a linear function whose graph passes both points P and Q?

TEST QUBE Question 14 of 22 >

Section 2, Module 1: Math

Annotate

15

Mark for Review

$f(x)$ is defined as $f(x) = x(x-2)(x-11)^2$. How many different x-intercepts does the graph of $f(x)$ have?

(A) 3 (A)

(B) 4 (B)

(C) 5 (C)

(D) 6 (D)

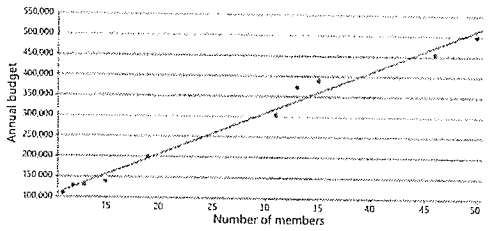
TEST QUBE Question 15 of 22 > Back Next

Section 2, Module 1: Math

Annotate

16

Mark for Review



Cathay conducted research on the number of member and the annual budgets of 10 senior daycare centers in her city. The scatterplot shows the relationship between the annual budget and the number of numbers enrolled in each daycare center. Which of the choices best describes the meaning of the slope of the linear model, 10,200, in this context?

(A) An additional member in a daycare center takes 10, 200 dollars more annual budget on average.

(B) Cathay researched 10, 200 daycare centers.

(C) The average annual budget of 10 daycare centers is 10, 200 dollars.

(D) The minimum of the annual budget of 10 daycare centers is 10, 200 dollars.

Section 2, Module 1: Math

Annotate

17

Mark for Review

What is an equivalent form of $3x^3y^{12} + 6x^3$?

(A) $3x(x^{12} + 2)$

(B) $3x^3(y^{12} + 2)$

(C) $3x^3(y^6 + 2)$

(D) $3x(y^{12} + 2)$

Section 2, Module 1: Math

Annotate

18

Mark for Review

A state imposes a 6% sales tax for each purchase in the state. How much in total should a person pay, in dollars including sales tax, when he/she purchases 3 desks, each costing 200 dollars, before the purchase tax in the state?

(A) 606

(B) 616

(C) 626

(D) 636

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Section 2, Module 1: Math

Annotate

19 Mark for Review

A car of a certain model loses its fuel mileage as the car engine gets old. $F(y) = 20(0.95)^y$ models the fuel mileage of the car, in miles per gallon, y years after purchase. Which of the choices is closest to the maximum distance, in miles, a car can travel with 50 gallons of fuel at the moment of 2 years after purchase?

(A) 25

(B) 350

(C) 900

(D) 2,750

TEST QUBE Question 19 of 22 >

Section 2, Module 1: Math

Annotate

20 Mark for Review

Data set	A	B
Values	105, 107, 109, 115, 116	101, 103, 105, 110, 111, 112, x

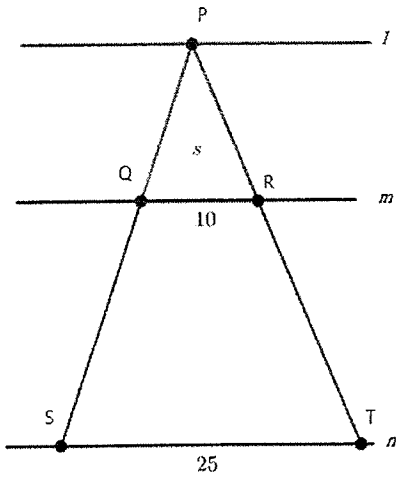
Data sets A and B contain 5 and 7 values, respectively, as shown above. The median of the values in data set A and B are the same. What is the value of x?

TEST QUBE Question 20 of 22 >

Section 2, Module 1: Math

Annotate

21 Mark for Review



In the diagram above, lines l, m, and n are parallel to each other. The length of QR equals 10 units, and the length of ST equals 25 units. The area of triangle PQR is s. Which of the following expression equals the area of triangle PST?

(A) $4s$

(B) $\frac{25}{4}s$

(C) $9s$

(D) $\frac{49}{7}s$

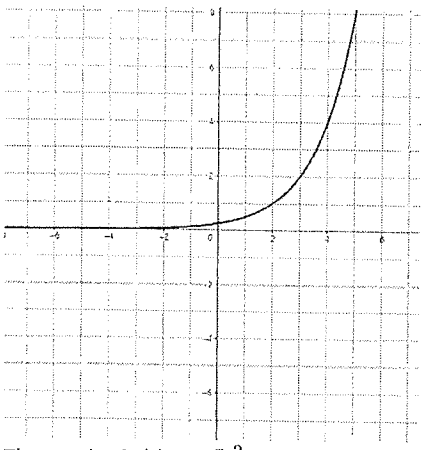
TEST QUBE Question 21 of 22 > Back Next

Section 2, Module 1: Math

Annotate

22

Mark for Review



The graph of $g(x) = 2^{x-2}$ is shown. Which of the following interprets the relationship between $g(t)$ and $g(t + 3)$, when t is a constant?

(A) $g(t) + 6 = g(t + 3)$ ~~A~~

(B) $g(t)^3 = g(t + 3)$ ~~B~~

(C) $g(3t) = g(t + 3)$ ~~C~~

(D) $2^3 g(t) = g(t + 3)$ ~~D~~