I

2

Module 1

2

35:00

II

Section 2, Module 1: Math

Annotate

1

Mark for Review

If $6y = 12$, what is the value of y?

(A) 12 (A)

(B) 6 (B)

(C) 3 (C)

III (D) 2 (D)

IV

TEST QUBE Question 1 of 22 >

Section 2, Module 1: Math

Annotate

3

Mark for Review

What is 16% of 25?

(A) 4 (A)

(B) 14 (B)

(C) 16 (C)

(D) 400 (D)

TEST QUBE Question 3 of 22 >

V

Section 2, Module 1: Math

Annotate

2

Mark for Review

Each side of a fair 2-sided coin is denoted heads and tails. If Jake flips the coin twice, what is the probability of having only heads as the result?

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

VI (B) $\frac{1}{3}$ (B)

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

(D) $\frac{1}{8}$ (D)

VII

TEST QUBE Question 2 of 22 >

Section 2, Module 1: Math

Annotate

4

Mark for Review

$F(x) = 120,000 + 4600x$

Function $F(x)$ models a nuclear power plant's total monthly operation cost, in dollars, where x represents the number of workers working at the nuclear power plant. If 27 workers work at the nuclear power plant this month, how much is the total operation cost, in dollars, of the nuclear power plant for this month?

(A) 124, 200 (A)

(B) 124, 600 (B)

(C) 200, 600 (C)

(D) 244, 200 (D)

TEST QUBE Question 4 of 22 > Back Next

Section 2, Module 1: Math

Annotate

5 Mark for Review

The area of Abraham's square-shaped cornfield equals 196 acres. The length of each side of Jennifer's square-shaped cornfield equals half of the corresponding side length of Abraham's cornfield. Which choice represents the area of Jennifer's cornfield, in acres?

(A) $196 \times \frac{1}{2}$

(B) 196×50

(C) $196 \times (\frac{1}{2})^2$

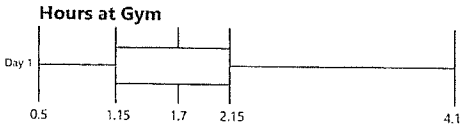
(D) $196^2 \times (\frac{1}{2})^2$

TEST QUBE Question 5 of 22 >

Section 2, Module 1: Math

Annotate

6 Mark for Review



The box plot represents the distribution of time spent at the gym on a certain day, in hours, of 20 Monster Gym members. Which of the following interpretations of the box plot is true?

(A) At least 5 gym members spent more than 4.1 hours at the gym.

(B) The mean hours spent at the gym is 2.15.

(C) The median hours spent at the gym is 2.15.

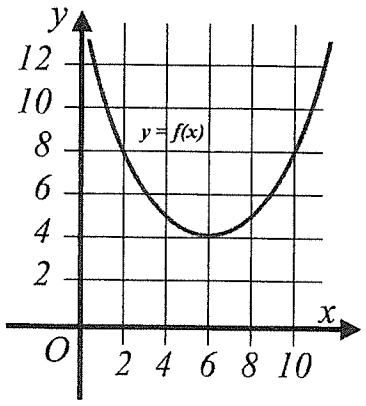
(D) At least 15 gym members spent more than 1.15 hours at the gym.

TEST QUBE Question 6 of 22 >

Section 2, Module 1: Math

Annotate

7 Mark for Review



The figure above shows the graph of the quadratic function $y = f(x)$ on the xy-plane. How many different real root(s) does the quadratic equation $f(x) = 0$ have?

(A) 0

(B) 1

(C) 2

(D) Infinitely many

TEST QUBE Question 7 of 22 > Back Next

I II III IV V VI VII

Section 2, Module 1: Math — Annotate

8 Mark for Review

A city government plans to spend at most $24,000$ dollars for a city environment campaign, which consists of tree planting and garbage recycling. Tree planting costs 55 dollars per tree (t), and garbage recycling costs 90 dollars per gallon of garbage (g). Which inequality represents this situation?

II

III

(A) $55t \leq 24,000$ (A)

(B) $55t + 90g \leq 24,000$ (B)

(C) $90t + 55g \leq 24,000$ (C)

(D) $55t + 90t \leq 24,000$ (D)

IV

TESTQUBE Question 8 of 22 >

Section 2, Module 1: Math — Annotate

9 Mark for Review

V

$x + 2y = 11$

$4xy = 20$

(x, y) is the solution for the system of equations above. Find one value of y that satisfies the system of equations.

VI

VII

TESTQUBE Question 9 of 22 >

Section 2, Module 1: Math — Annotate

10 Mark for Review

Each side of a fair 6-sided dice has a different integer from 1 to 6. When the dice is rolled once, what is the probability of rolling a prime number?

(A) $\frac{1}{6}$ (A)

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

(C) $\frac{1}{3}$ (C)

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

TESTQUBE Question 10 of 22 >

Section 2, Module 1: Math — Annotate

11 Mark for Review

Mountain A erodes every year, causing a decrease in height by 0.1% compared to the previous year. If the current height of mountain A is M feet, which choice best models the height of mountain A, in feet, after x years?

(A) $M(0.1)^x$ (A)

(B) $M(1 - 0.9)^x$ (B)

(C) $M(1 - 0.001)^x$ (C)

(D) $M(0.001)^x$ (D)

TESTQUBE Question 11 of 22 > Back Next

Section 2, Module 1: Math

Annotate

12

Mark for Review

Student	Credits
A	11
B	14
C	13
D	18
E	12
F	10
G	13

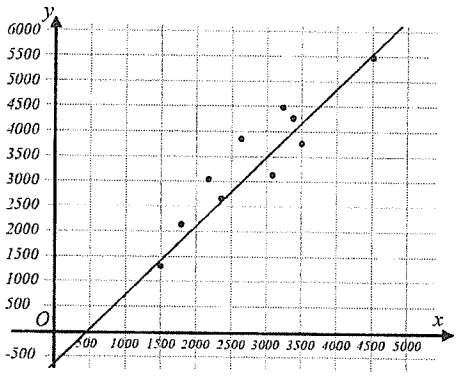
Seven students A, B, C, D, E, F, and G take credit courses at Wharton High School. The total credits each student takes this semester are shown in the table above. What is the median value of the seven students' credits at Wharton High School?

Section 2, Module 1: Math

Annotate

13

Mark for Review



The scatterplot above shows the statistics of major cities in data set P, where the x-values represent the land area (in square kilometers) and the y-values represent the population (in thousands). Which choice most appropriately models the line of best fit for data set P?

(A) $y = -1.41x + 560$ (A)

(B) $y = -1.41x - 560$ (B)

(C) $y = 1.41x + 560$ (C)

(D) $y = 1.41x - 560$ (D)

I

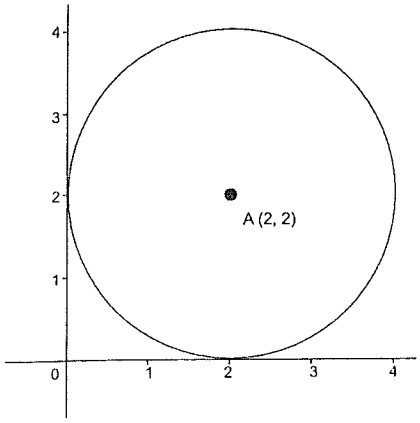
Section 2, Module 1: Math

Annotate

14

Mark for Review

II



III

What is the area of a circle whose center is $A(2, 2)$ and is tangent to both x-axis and y-axis?

IV

(A) π (A)

(B) 2π (B)

(C) 4π (C)

(D) 8π (D)

V

VI

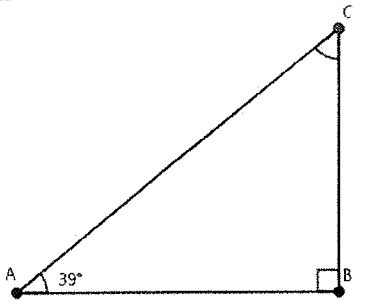
VII

Section 2, Module 1: Math

Annotate

15

Mark for Review



Among the internal angles in right triangle ABC, angle B has the largest value. If angle A equals 39°, what is the value, in degrees, of angle C?

Section 2, Module 1: Math

Annotate

16

Mark for Review

Which expression is equivalent to $x(xy)^3 \times \frac{x}{y}$ where x and y are different positive real numbers?

(A) x^5y^2 (A)

(B) x^4y^3 (B)

(C) x^3y^{-2} (C)

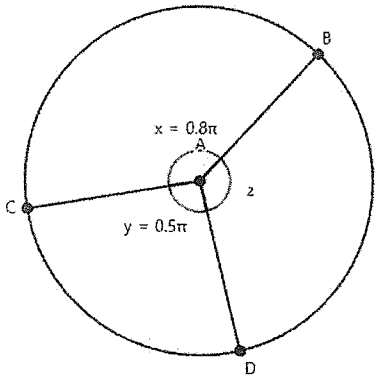
(D) $(xy)^3$ (D)

Section 2, Module 1: Math

Annotate

17

Mark for Review



Points B, C, and D are on a circle with center A. Angle BAC (angle x) equals 0.8π and angle CAD (angle y) equals 0.5π, each in radians. What is the measure of the smaller angle BAD, in radians? (The picture is not drawn to scale.)

(A) 2π (A)

(B) 1.5π (B)

(C) 0.7π (C)

(D) 0.5π (D)

Section 2, Module 1: Math

Annotate

18

Mark for Review

What is the correct set of solutions for equation $x^2 - 12x + 27 = 0$?

(A) $x = 3$ or $x = 9$ (A)

(B) $x = -3$ or $x = 9$ (B)

(C) $x = 3$ or $x = -9$ (C)

(D) $x = -3$ or $x = -9$ (D)

I

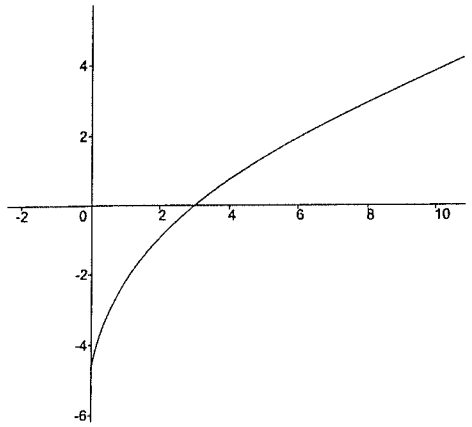
Section 2, Module 1: Math

Annotate

19

Mark for Review

II



III

A part of the graph of $f(x) = 2\sqrt{2x} - 5$ on the xy-plane is shown above. Each point of the graph of $f(x)$ is translated by 6 to the positive x-direction, forming a new graph identical to the graph of $g(x)$. Which equation defines $g(x)$?

IV

(A) $g(x) = 2\sqrt{12x} - 5$ (A)

(B) $g(x) = 2\sqrt{x - 6} - 5$ (B)

V

(C) $g(x) = 2\sqrt{2(x - 6)} - 5$ (C)

(D) $g(x) = 2\sqrt{2x} - 11$ (D)

VI

VII

TEST QUBE Question 19 of 22 >

Section 2, Module 1: Math

Annotate

20

Mark for Review

$f(x) = \frac{1}{x-11}$

What is the value of x, if $f(x) = \frac{1}{35}$?

TEST QUBE Question 20 of 22 >

Section 2, Module 1: Math

Annotate

21

Mark for Review

In a city, 60% of the population owns a car, and 40% of those car owners also own a motorcycle. If the city has a population of 50,000, how many people own both a car and a motorcycle?

TEST QUBE Question 21 of 22 > Back Next

Section 2, Module 1: Math

Annotate

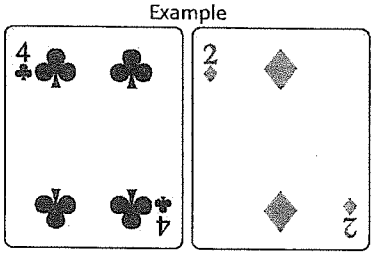
22

Mark for Review

Table

Suit	Numerals	Faces
Spades	1, 2, 3, 4, 5, 6, 7, 8, 9, and 10	Jack, Queen, and King
Hearts	1, 2, 3, 4, 5, 6, 7, 8, 9, and 10	Jack, Queen, and King
Clubs	1, 2, 3, 4, 5, 6, 7, 8, 9, and 10	Jack, Queen, and King
Diamonds	1, 2, 3, 4, 5, 6, 7, 8, 9, and 10	Jack, Queen, and King

Example



A standard card deck contains 52 unique cards. On each card, either a numeral or a face is denoted as shown in the table. (Aces are considered as 1.) Julia randomly picked two different numeral cards from a deck and placed one on the left and one on the right. What is the chance of the numeral denoted on the card Julia placed on the left is exactly two times bigger than the one on the right?

(A) $\frac{80}{40\times39}$ (A)

(B) $\frac{16}{40\times39}$ (B)

(C) $\frac{80}{52\times52}$ (C)

(D) $\frac{16}{52\times52}$ (D)