WEEK1.2

I

2

Module 2

35:00

2

Section 2, Module 2: Math

Annotate

1 Mark for Review

140 grams of white rice contains 42 grams of carbohydrates. What is the percentage of carbohydrates in white rice?

II

(A) 10%

(B) 20%

III

(C) 30%

(D) 42%

IV

TESTQUBE Question 1 of 22 >

Section 2, Module 2: Math

Annotate

3 Mark for Review

$2(x + y) = 14$

$x - by = -13$

$x = 2$ is a part of the solution for the system of equations above, where b is a constant real number. What is the value of b?

(A) 1

(B) 2

(C) 3

(D) 4

TESTQUBE Question 3 of 22 >

V

Section 2, Module 2: Math

Annotate

2 Mark for Review

Kepler school library charges a 1.50 dollars daily fee for books returned after 14 days of borrowing. Steven borrowed a book at Kepler school library and returned it late, and paid 4.50 dollars as a late return fee. How long is the period, in days, between Steven borrowing and returning the book?

VI

(A) 1

(B) 4

(C) 14

(D) 17

VII

TESTQUBE Question 2 of 22 >

Section 2, Module 2: Math

Annotate

4 Mark for Review

$f(x) = 380,000 - 75x$

$f(x)$ models the distance, in million miles, between the Earth and an outer Galaxy A, x years past 1970 for $x < 50$. Which choice best describes this context?

(A) Galaxy A was traveling away from the Earth in 1970.

(B) Galaxy A approaches earth 75 million miles every year.

(C) Galaxy A was 75 million miles away from the Earth in 1970.

(D) Galaxy A would be 384, 500 miles away from the Earth in the year 2030.

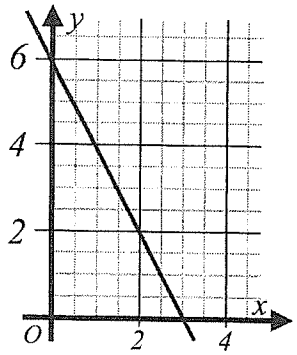
TESTQUBE Question 4 of 22 > Back Next

Section 2, Module 2: Math

Annotate

5

Mark for Review



What is the y-intercept of the graph shown?

(A) 6 (A)

(B) 4 (B)

(C) 3 (C)

(D) 0 (D)

TEST QUBE Question 5 of 22 >

Section 2, Module 2: Math

Annotate

6

Mark for Review

Vigo's school band consists of guitar players and flute players, where a band member plays exactly one kind of instrument between the two. If there are twice as many guitar players as there are flute players, and there are 18 members in Vigo's band, how many guitar players are present in Vigo's band?

(A) 12 (A)

(B) 8 (B)

(C) 6 (C)

(D) 4 (D)

TEST QUBE Question 6 of 22 >

Section 2, Module 2: Math

Annotate

7

Mark for Review

Factory F has a 2% chance of producing defective products. Out of $5,000$ items produced from factory F, which of the following values is closest to the expected quantity of defective products?

(A) 2 (A)

(B) 10 (B)

(C) 100 (C)

(D) 1,000 (D)

TEST QUBE Question 7 of 22 > Back Next

I

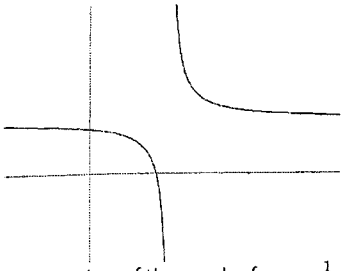
Section 2, Module 2: Math

Annotate

8

Mark for Review

II



III

An overview of the graph of $y = \frac{1}{x-3} + 2$ is shown. What is the x-intercept of the graph?

IV

V

VI

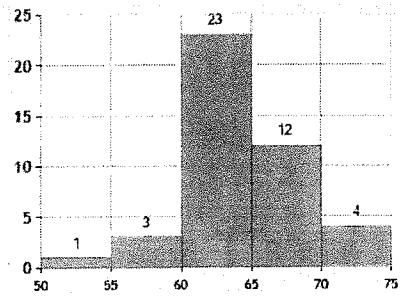
VII

Section 2, Module 2: Math

Annotate

9

Mark for Review



The histogram shows the distribution of the ages of all 43 students in a certain senior literature course. Which of the following is true?

(A) The median age of the students is greater than or equal to 60, and less than 65. (A)

(B) A student at the age of 57 is above the 90th percentile of age. (B)

(C) 60 students are 23 years old. (C)

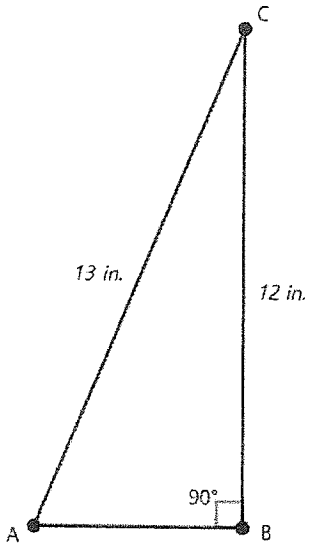
(D) 12 students are older than or at the age of 70. (D)

Section 2, Module 2: Math

Annotate

10

Mark for Review



In a right triangle ABC where angle $B = 90^\circ$, the hypotenuse A is 13 inches long, and the opposite B is 12 inches long. What is $\cos(A)$?

(A) $\frac{1}{13}$ A

(B) $\frac{5}{13}$ B

(C) $\frac{13}{5}$ C

(D) $\frac{13}{12}$ D

TESTBQUBE Question 10 of 22 >

Section 2, Module 2: Math

Annotate

11

Mark for Review

Approve Relocation	44
Against Relocation	56

This winter, City A is planning a vote for or against the relocation of the city hall. Kristin visited 100 restaurants near the city hall to interview restaurant owners and collected the data above. Based on the data, she concluded that among 200,000 voters in City A, approximately 88,000 will vote for the relocation. Which of the following is the best strategy Kristin can apply to improve the accuracy of her research?

(A) Interviewing 10 restaurant owners instead of 100. A

(B) Revising the conclusion such that 112,000 voters will vote for the relocation. B

(C) Calling random voters in City A on the phone to conduct the interview rather than visiting the restaurants. C

(D) Interviewing additional 100 restaurant owners in another city to enlarge the sample size. D

TESTBQUBE Question 11 of 22 > Back Next

I

Section 2, Module 2: Math

Annotate

12

Mark for Review

II

$f(x) = \frac{1}{3}\sqrt{x}$

What is the x-value when $f(x) = 3$?

III

IV

TESTQUBE Question 12 of 22 >

Section 2, Module 2: Math

Annotate

13

Mark for Review

V

$f(x) = 2,260(1.05)^{\frac{x}{6}}$

$f(x)$ models the population of certain fungi per square centimeter of an experimental medium x hours after the initial observation. Which of the following functions best models the population of the fungi per square centimeter of the medium y days after the initial observation?

VI

(A) $24 \times 2,260(1.05)^{\frac{y}{6}}$ (A)

(B) $2,260(1.05)^{4y}$ (B)

(C) $2,260(1.05)^{\frac{y}{6}}$ (C)

VII

(D) $2,260(1.05 \times 24)^{\frac{y}{6}}$ (D)

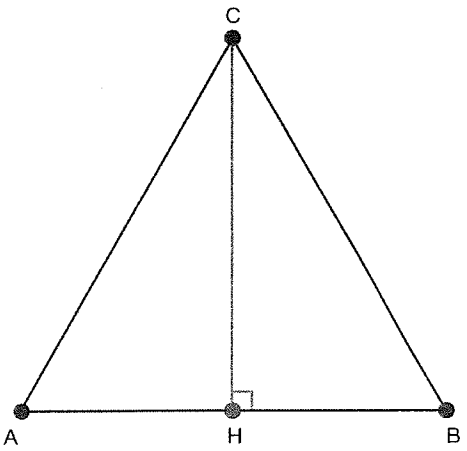
TESTQUBE Question 13 of 22 >

Section 2, Module 2: Math

Annotate

14

Mark for Review



Straight line CH bisects the area of an equilateral triangle ABC. What is the value of angle ACH in radians?

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

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

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

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

TESTQUBE Question 14 of 22 > Back Next

Section 2, Module 2: Math

Annotate

15

Mark for Review

$x^2 + 16x + k = 0$

The given equation has two distinct real solutions for x, where k is a constant. Which of the following values can k be to satisfy the condition above?

(A) 0 (A)

(B) 64 (B)

(C) 128 (C)

(D) $1,024$ (D)

TESTQUBE Question 15 of 22 >

II

III

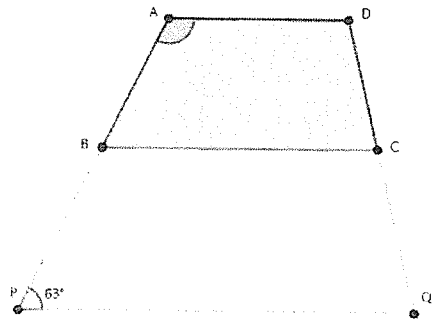
IV

Section 2, Module 2: Math

Annotate

16

Mark for Review



Trapezoids $ABCD$ and $BPQC$ are similar, where sides CD and DA of $ABCD$ correspond to QC and CB of $BPQC$, respectively. If angle P measures 63°, what is the value, in degrees, of angle A?

TESTQUBE Question 16 of 22 >

V

VI

VII

Section 2, Module 2: Math

Annotate

17

Mark for Review

$$x = \frac{1}{3}(y+1)$$

$$xz = 27$$

$$c = x + y + z$$

$x = 3$ is a part of the solution to the given system of equations where c is a constant real number. What is the value of c?

TESTQUBE Question 17 of 22 > Back Next

WEEK1.2

I

2

Module 2

2

II

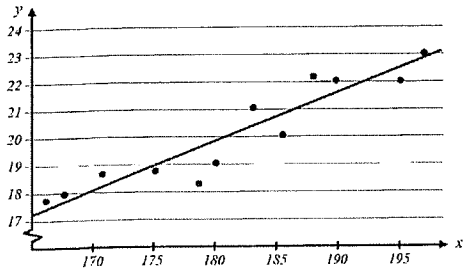
Section 2, Module 2: Math

Annotate

18

Mark for Review

III



A group of geologists analyzed fossils from the Jurassic Era excavated in a certain region to measure the average atmospheric temperature at the time when the fossil was formed. The x values of the scatterplot represent the ages of the fossil records (in million years ago), and the y values represent the calculated average atmospheric temperature of the region based on each record (in degrees Celsius). The slope of the line of best fit is 0.19. Which of the following interpretations for the number 0.19 is most appropriate in this context?

IV

V

(A) The average atmospheric temperature increased approximately 0.19 degrees Celsius per million years during the Jurassic Era. ~~A~~

(B) The average atmospheric temperature in the Jurassic Era was 0.19 degrees Celsius. ~~B~~

VI

(C) The average atmospheric temperature in the Jurassic Era was 0.19 degrees Celsius higher than now. ~~C~~

(D) The average atmospheric temperature increased 0.19 degrees Celcius every year during the Jurassic Era. ~~D~~

VII

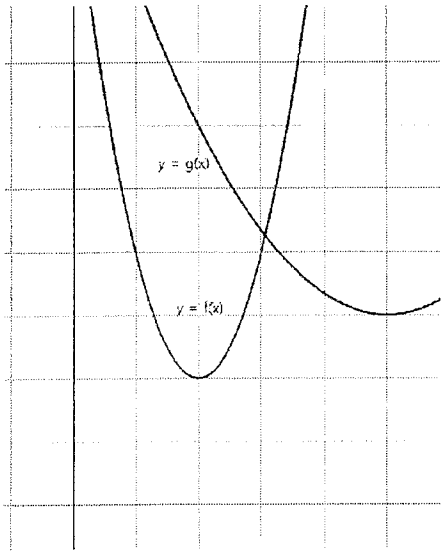
TEST QUBE Question 18 of 22 >

Section 2, Module 2: Math

Annotate

19

Mark for Review



$f(x) = 2(x-2)^2 + 2$
$g(x) = \frac{1}{3}(x-5)^2 + 3.$
The distance between the vertex of $y = f(x)$ and the vertex of $y = g(x)$ plotted on xy-plane is $\sqrt{d}$. What is the value of d?

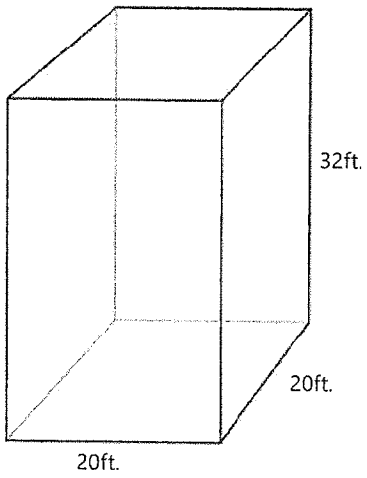
TEST QUBE Question 19 of 22 > Back Next

Section 2, Module 2: Math

Annotate

20

Mark for Review



The base of a 32-foot-deep cuboid diving pool is a square with 20 feet of each side. The pool is full of water with which the density equals 62.4 pounds per cubic foot. Which of the following is closest to the total mass of the water in pounds?

(A) 800,000 pounds

(B) 40,000 pounds

(C) 13,000 pounds

(D) 200 pounds

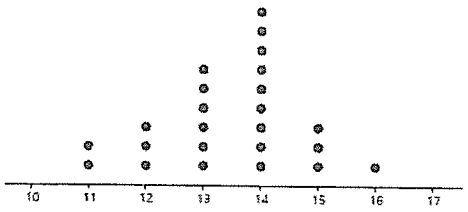
Section 2, Module 2: Math

Annotate

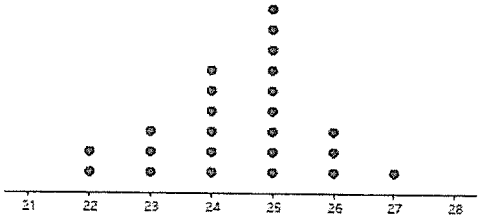
21

Mark for Review

Dot Plot A: Data Set X



Dot Plot B: Data Set Y



Dot plots A and B represent the distribution of 25 integer values each from data sets X and Y, respectively. Each value in data set Y is greater than the corresponding value in data set X by 11. Which of the following descriptions about the relationship between data sets X and Y is true?

(A) The mean value of data set X equals 15, and the mean value of Y equals 26.

(B) The median of data set Y equals the median of data set X.

(C) The data set Y contains 11 more values than data set X.

(D) The range of data set Y equals the range of data set X.

WEEK1.2

I

Section 2, Module 2: Math

Annotate

22

Mark for Review

II

$f(x) = 39.1(0.98)^{\frac{x}{12}}$ models the air pressure of a car tire, in psi, after x hours of filling the tire with air. What does the number 0.98 mean in this context?

III

(A) An average rate of decrease in the tire pressure per 12 hours in percent. (A)

(B) The ratio of the tire pressure at a certain time to the tire pressure 12 hours after the certain time. (B)

(C) An average decrease in the tire pressure per 12 hours in psi/hour. (C)

IV

(D) The ratio of the tire pressure 12 hours after a certain time to the tire pressure at the certain time. (D)

V

VI

VII