I

35:00

II

Section 2, Module 2: Math

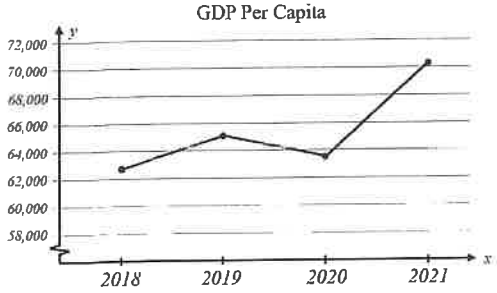
Annotate

1

Mark for Review

III

GDP Per Capita



The given graph represents the four-year change in a particular country's Gross Domestic Product per capita, in dollars per capita. In which year in the four years did the country have the highest GDP per capita?

IV

(A) 2018 (A)

(B) 2019 (B)

(C) 2020 (C)

(D) 2021 (D)

V

TESTQUBE Question 1 of 22 >

Section 2, Module 2: Math

Annotate

2

Mark for Review

Various dating systems call a year differently. For example, the year 2023 in Gregorian Calendar equals the year 2567 in Buddhist Calendar. Assuming the starting date and length of a year are the same, the year in Gregorian Calendar G can be modeled in a linear function $f(B)$ where B is the year in Buddhist Calendar, such that $f(B) = B + c$ where c is constant. What is the value of c?

(A) 2567 (A)

(B) 544 (D)

(C) -544 (C)

(D) -2567 (D)

TESTQUBE Question 2 of 22 >

Section 2, Module 2: Math

Annotate

3

Mark for Review

Which of the following expressions is equivalent to $xy + 2x^2y^2 - xy^3$?

VI

(A) $xy(xy - y^2)$ (A)

(B) $2xy(x + y^2)$ (B)

(C) $xy(1 + 2xy - y^2)$ (C)

(D) $y(xy + 2x^2 - y)$ (D)

VII

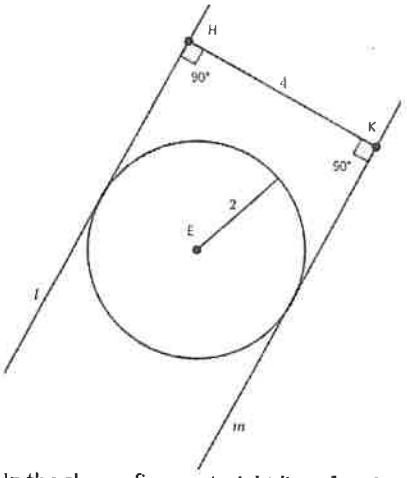
TESTQUBE Question 3 of 22 > Back Next

Section 2, Module 2: Math

Annotate

4

Mark for Review



In the shown figure, straight lines l and m are tangent to a circle with a radius of 2 units. HK is perpendicular to both lines l and m and is 4 units long. At how many points do lines l and m intersect?

(A) 0 (A)

(B) 1 (B)

(C) 2 (C)

(D) Infinitely many (D)

Section 2, Module 2: Math

Annotate

5

Mark for Review

Emily has 21 chairs in her office. Some of the chairs have four legs each, while the others have three legs each. If there are a total of 72 legs, how many three-legged chairs does Emily have in her office?

Section 2, Module 2: Math

Annotate

6

Mark for Review

Function f is defined by $f(x) = \frac{1}{x} + 2$. What is the value of $f(\frac{1}{2})$?

(A) $\frac{5}{2}$ (A)

(B) 3 (B)

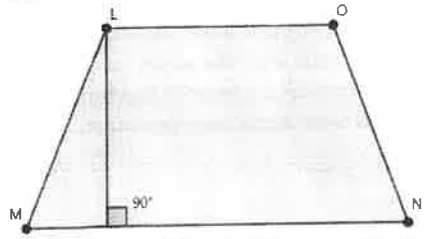
(C) $\frac{7}{2}$ (C)

(D) 4 (D)

I

Section 2, Module 2: Math — Annotate

7 — Mark for Review



In a given figure, LO and MN are parallel sides of trapezoid $LMNO$. The mean of the lengths LO and MN is 8 units. If the area of trapezoid $LMNO$ is 32 square units, what is the height of the trapezoid $LMNO$?

II

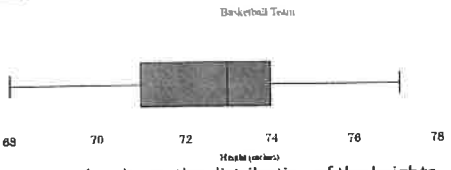
III

IV

TESTBQUBE — Question 7 of 22 >

Section 2, Module 2: Math — Annotate

9 — Mark for Review



The box plot shows the distribution of the heights, in inches, of 19 players in a high school basketball team. What is the height, in inches, of the player at 25th percentile?

(A) 68 (A)

(B) 71 (B)

(C) 73 (C)

(D) 74 (D)

TESTBQUBE — Question 9 of 22 >

V

Section 2, Module 2: Math — Annotate

8 — Mark for Review

Which of the following statements is true for a circle that is defined by $(x + 2)^2 + (y - 1)^2 = 4$?

(A) It has a radius of 4 units. (A)

(B) It is tangent to the y-axis. (B)

(C) Its center is $(1, 2)$. (C)

(D) It has a diameter of 2 units. (D)

VI

VII

TESTBQUBE — Question 8 of 22 >

Section 2, Module 2: Math — Annotate

10 — Mark for Review

Factory F produces ballpoint pens. 7% of the produced pens contain more than 1.1mL of ink. Which of the following quantities is most reasonable for the number of pens that contain more than 1.1mL of ink out of $20,000$ randomly chosen ballpoint pens produced at factory F?

(A) 1.1 (A)

(B) 7 (B)

(C) 140 (C)

(D) 1,400 (D)

TESTBQUBE — Question 10 of 22 > Back Next

Section 2, Module 2: Math — Annotate

11 — Mark for Review

$x^2 - 6x = -8$

What is one of the values of x that satisfies the given equation?

TESTQUBE Question 11 of 22 >

Section 2, Module 2: Math — Annotate

12 — Mark for Review

A power plant absorbs solar energy and converts it. During the conversion, 60% of the energy absorbed is lost and the rest is converted to electric energy. How much energy, in Joules, would the power plant convert out of 1,000 Joules of solar energy?

(A) 200 (A)

(B) 400 (B)

(C) 600 (C)

(D) 800 (D)

TESTQUBE Question 12 of 22 >

Section 2, Module 2: Math — Annotate

13 — Mark for Review

Which of the following expressions has the same value as $2\sqrt{2}$?

(A) 2^2 (A)

(B) $\frac{8}{2}$ (B)

(C) $\sqrt{8}$ (C)

(D) $\sqrt{4}$ (D)

TESTQUBE Question 13 of 22 >

Section 2, Module 2: Math — Annotate

14 — Mark for Review

When a printer starts printing, it loads document data from a computer and prints out the document. Amma's printer always takes 12 seconds to load data and prints 10 pages per minute. Which of the following functions correctly models the time T, in seconds, it takes for Amma's printer to start loading a document and complete printing p pages?

(A) $T(p) = 12 + 6p$ (A)

(B) $T(p) = 6 + \frac{1}{12}p$ (B)

(C) $T(p) = 12 + 10p$ (C)

(D) $T(p) = 12 + \frac{1}{10}p$ (D)

TESTQUBE Question 14 of 22 > Back Next

I

II

III

IV

V

VI

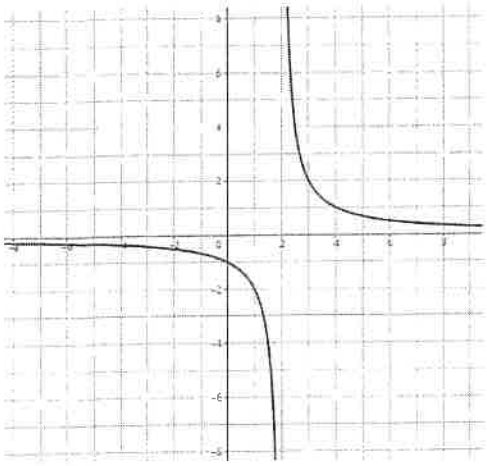
VII

Section 2, Module 2: Math

Annotate

15

Mark for Review



The graph of $y = \frac{2}{x-2}$ is shown. Which of the following values of x does not have a corresponding y value?

(A) 1 (A)

(B) 2 (B)

(C) 3 (C)

(D) 4 (D)

TESTQUBE Question 15 of 22 >

Section 2, Module 2: Math

Annotate

16

Mark for Review

Which of the equations represents a line that has a slope of -1 and a y-intercept of 6?

(A) $y = x + 6$ (A)

(B) $y = x - 6$ (B)

(C) $y = -x + 6$ (C)

(D) $y = -x - 6$ (D)

TESTQUBE Question 16 of 22 >

Section 2, Module 2: Math

Annotate

17

Mark for Review

$x = y(y^2 - 11y - 20) + 1$

$(a, 0)$ is one of the solution sets for the given equation. What is the value of a?

TESTQUBE Question 17 of 22 > Back Next

Section 2, Module 2: Math

Annotate

18

Mark for Review

What is the area of a square with a perimeter of 12?

(A) 16 (A)

(B) 9 (B)

(C) 8 (C)

(D) 4 (D)

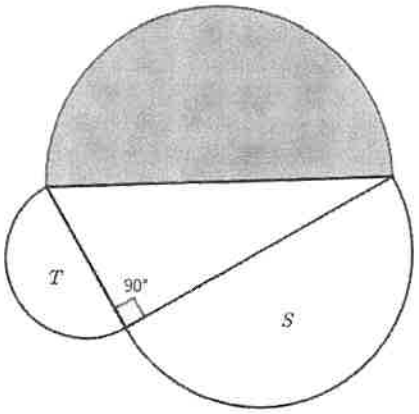
TESTQUBE Question 18 of 22 >

Section 2, Module 2: Math

Annotate

19

Mark for Review



In the given figure, each of the three semicircles has a diameter that equals a corresponding side length of a right triangle. S and T are the area of two smaller semicircles. What is the area of the largest semicircle in terms of S and T?

(A) $S+T$ (A)

(B) S^2+T^2 (B)

(C) ST (C)

(D) $\sqrt{ST}$ (D)

TESTQUBE Question 19 of 22 > Back Next

I

II

III

IV

V

VI

VII

Section 2, Module 2: Math

Annotate

20

Mark for Review

A bicycle lock consists of a three digit password. Each digit of the password can have an integer value from 0 to 6, where the same number may appear more than once. A different order of the same combination sets a different password. For example, 656 and 566 are two different valid passwords. What is the number of different passwords that can be set for the lock?

(A) 3^6 (A)

(B) 6^3 (B)

(C) 3^7 (C)

(D) 7^3 (D)

TESTBQUBE Question 20 of 22 >

Section 2, Module 2: Math

Annotate

21

Mark for Review

Factory A produces 12-ounce packs of breakfast cereal in four parallel production lanes. The owner conducted research to find if the production lanes are operating as intended. She randomly selected a production lane and measured the masses of 5 consecutively produced packs from the lane. She found the mean value of 13.5 ounces per pack of breakfast cereal. She concluded that Factory A has a defect in all production lanes. Which of the following strategy is most appropriate for the owner to apply in order to improve her research?

(A) Measuring the mass of just one pack instead of 5. (A)

(B) Using pounds as a unit instead of ounces. (B)

(C) Examining 50 randomly selected packs from Factory A. (C)

(D) Comparing the result of the same research from another factory. (D)

TESTBQUBE Question 21 of 22 > Back Next

Section 2, Module 2: Math

Annotate

22

Mark for Review

The clock marks the time $2:00$. The angle between the hour hand and the minute hand is $\frac{\pi}{d}$ radians. What is the value of d?