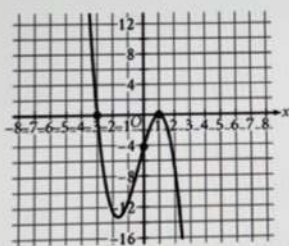


15



The graph of $y=f(x)$ is shown where $f(x) = ax^3 + bx^2 + cx + d$ and a, b, c , and d are constants. For how many distinct values of x does $f(x)=0$?

- ☒ A) One
- ☐ B) Two
- ☐ C) Three
- ☐ D) Four

Submit All

Question 15 of 22

Next >

19:23

18

The product of a positive number x and the number that is 15 less than x is equal to 286. What is the value of x ?

26

ant-produced response directions

You can enter up to 5 characters for a **positive** answer and up to 6 characters (including the negative sign) for a **negative** answer.

If your answer is a **fraction** that doesn't fit in the provided space, enter the decimal equivalent.

If your answer is a **decimal** that doesn't fit in the provided space, enter it by truncating or rounding at the fourth digit.

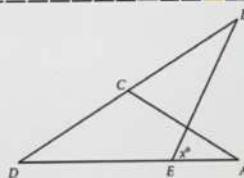
If your answer is a **mixed number** (such as $3\frac{1}{2}$), Enter it as an improper fraction ($7/2$) or its decimal equivalent (3.5).

Don't enter **symbols** such as a percent sign, comma, or dollar sign.

Examples

Examples		
Answer	Acceptable ways to enter answer	Unacceptable: will NOT receive credit
3.5	3.5 3.50 7/2	31/2 3 1/2
$2\frac{2}{3}$	2/3 .6666 .6667 0.666 0.667	0.66 .66 0.67 .67
$-\frac{1}{3}$	-1/3 - .3333 -0.333	- .33 -0.33

19



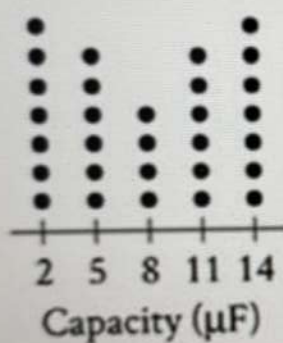
Note: Figure not drawn to scale.

In the figure, $AC=CD$. The measure of angle EBC is 29° , and the measure of angle ACD is 108° . What is the value of x ?

— 100 —

Section 2, Module 1: Math

22



The dot plot shows the distribution of capacity for a set of capacitors, set A, which a researcher used for a certain experiment. For another experiment, the researcher used a different set of capacitors, set B. Set B has the same number of capacitors as set A but the capacity of each capacitor of set B is 17 microfarads (μF) greater than the capacity of each respective capacitor in set A. Which of the following is true about the capacities of the capacitors in set B?

- ☐ A) The mean capacity is 8 μF , and the range of capacities is 12 μF
- ☒ B) The mean capacity is 8 μF , and the range of capacities is 29 μF
- ☐ C) The mean capacity is 25 μF , and the range of capacities is 12 μF
- ☐ D) The mean capacity is 25 μF , and the range of capacities is 29 μF

13:03

Section 2, Module 1: Math

ed response directions

More than one correct answer, enter only one answer.

Enter up to 5 characters for a **positive** answer and up to 6 characters (including the negative sign) for a **negative** answer.

If the answer is a **fraction** that doesn't fit in the provided space, enter its decimal equivalent.

If the answer is a **decimal** that doesn't fit in the provided space, enter it rounded or rounding at the fourth digit.

If the answer is a **mixed number** (such as $3\frac{1}{2}$), Enter it as an improper fraction or its decimal equivalent (3.5).

Do not use **symbols** such as a percent sign, comma, or dollar sign.

Examples

Answer	Acceptable ways to enter answer	Unacceptable: will NOT receive credit
3.5	3.5 3.50 7/2	31/2 3 1/2
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$-\frac{1}{3}$	-1/3 -.3333 -0.333	-.33 -0.33

21

Line j is defined by $4x + 5y = 55$. Line k is parallel to line j in the xy-plane. An equation of line k is $24x + ry = 15$, where r is a constant. If line k passes through the point (0, b), what is the value of b?

Question 21 of 22

Next >

Section 2, Module 1: Math

Reduced response directions

Enter **more than one correct answer**, enter only one answer.

Enter up to 5 characters for a **positive** answer and up to 6 characters (including the negative sign) for a **negative** answer.

If your answer is a **fraction** that doesn't fit in the provided space, enter its decimal equivalent.

If your answer is a **decimal** that doesn't fit in the provided space, enter it by truncating or rounding at the fourth digit.

If your answer is a **mixed number** (such as $3\frac{1}{2}$), Enter it as an improper fraction ($\frac{7}{2}$) or its decimal equivalent (3.5).

Do not enter **symbols** such as a percent sign, comma, or dollar sign.

Examples

Answer	Acceptable ways to enter answer	Unacceptable: will NOT receive credit
3.5	3.5 3.50 7/2	31/2 3 1/2
$\frac{2}{3}$	2/3 .6666 .6667 0.666 0.667	0.66 .66 0.67 .67
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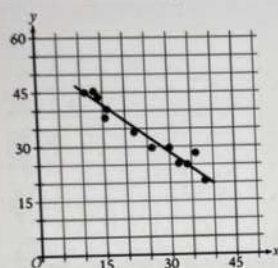
20

The positive number a is 2,800% of the number c , and c is 25% of the number b . If $a - b = wc$, where w is a constant, what is the value of w ?

Question 20 of 22

Next >

2



The scatterplot shows the relationship between two variables, x and y , for data set A. A line of best fit for the data is also shown. Data set B is created by subtracting 11 units from the value of y for each data point from data set A. Which of the following is closest to the y -coordinate of the y -intercept of the line of best fit for data set B?

- ☐ A) 62.75
 ☐ B) 59.62
 ☐ C) 53
 ☐ D) 42.33

Submit All

Question 2 of 22

Next

4

An object has a mass of 308 grams and a volume of 28 cubic centimeters. What is the density, in grams per cubic centimeter, of the object?

- ☐ A) 11
- ☐ B) 280
- ☐ C) 336
- ☐ D) 8,624

Section 2, Module 2: Math

8

$$\begin{aligned}y &= 3x + 9 \\ 3y &= 8x - 6\end{aligned}$$

The solution to the given system of equations is (x, y) . What is the value of $x-y$?

- ☐ A) -123
- ☐ B) -33
- ☐ C) 3
- ☐ D) 57

Section 2, Module 2: Math

Response directions

Enter **more than one correct answer**, enter only one answer.

Enter up to 5 characters for a **positive** answer and up to 6 (including the negative sign) for a **negative** answer.

If your answer is a **fraction** that doesn't fit in the provided space, enter its decimal equivalent.

If your answer is a **decimal** that doesn't fit in the provided space, enter it using rounding at the fourth digit.

If your answer is a **mixed number** (such as $3\frac{1}{2}$), enter it as an improper fraction or its decimal equivalent (3.5).

Do not use **symbols** such as a percent sign, comma, or dollar sign.

Examples

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9

The exponential function f is defined by $f(x) = c^x$, where c is a constant greater than 1. If $f(6) = 9 \cdot f(4)$, what is the value of c ?

Question 9 of 22



Next

Section 2, Module 2: Math

Student-produced response directions

- If you find **more than one correct answer**, enter only one answer.
- You can enter up to 5 characters for a **positive** answer and up to 6 characters (including the negative sign) for a **negative** answer.
- If your answer is a **fraction** that doesn't fit in the provided space, enter the decimal equivalent.
- If your answer is a **decimal** that doesn't fit in the provided space, enter it by truncating or rounding at the fourth digit.
- If your answer is a **mixed number** (such as $3\frac{1}{2}$), Enter it as an improper fraction ($7/2$) or its decimal equivalent (3.5).
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3.5	3.5 3.50 7/2	31/2 3 1/2
$\frac{2}{3}$	$\frac{2}{3}$.6666 .6667 0.666 0.667	0.66 .66 0.67 .67
$-\frac{1}{3}$	-1/3 -.3333 -0.333	-.33 -0.33

11

$$\begin{aligned} -x - wy &= -337 \\ 2x - wy &= 47 \end{aligned}$$

In the given system of equations, w is a constant. In the xy -plane, the graphs of these equations intersect at the point $(g, 19)$, where g is a constant. What is the value of w ?

Module 2: Math

Response directions

For one correct answer, enter only one answer.

Use up to 6 characters for a **positive** answer and up to 6 characters for a **negative** answer.

For an action that doesn't fit in the provided space, enter it.

For a decimal that doesn't fit in the provided space, enter it using the fourth digit.

For a mixed number (such as $3\frac{1}{2}$), Enter it as an improper fraction (3.5).

For a number such as a percent sign, comma, or dollar sign.

Examples

Acceptable ways to enter answer	Unacceptable: will NOT receive credit
3.5	31/2
3.50	3 1/2
7/2	
2/3	0.66
.6666	.66
.6667	0.67
0.666	.67
0.667	
-1/3	-.33
-.3333	-0.33
-0.333	

13

A beaker containing a liquid is placed on a table. The function $g(t) = 295 + (361 - 295)(2.72)^{-0.104t}$ gives the approximate temperature, in kelvins, of the liquid t minutes after the beaker was placed on the table. According to this function, what was the approximate temperature, in kelvins, of the liquid when the beaker was placed on the table?

Question 13 of 22

Next

14

For the exponential function f , the value of $f(1)$ is k , where k is a constant. Which of the following equivalent forms of the function f shows the value of k as the coefficient or the base?

- ☐ A) $f(x) = 49(1.7)^{x+1}$
- ☐ B) $f(x) = 85(1.7)^x$
- ☐ C) $f(x) = 144.5(1.7)^{x-1}$
- ☐ D) $f(x) = 245.65(1.7)^{x-2}$

Question List

16:02

TRIPLE
어학원

Section 2, Module 2: Math

15

$$y = 9\left(\frac{a}{6}\right)^{x+c} - b$$

How many times does the graph of the given equation in the xy -plane cross the x -axis, where a , b , and c are positive constants such that $a > 6$ and $b > c$?

- ☐ A) Zero
- ☐ B) One
- ☒ C) Two
- ☐ D) Three

Submit All

Question 15 of 22

Next >

Question List

7:45

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어학원

Section 2, Module 2: Math

18

$$\frac{1}{5xy} + xyz = \frac{1}{4yz}$$

In the given equation, x , y , and z are positive numbers. Which expression is equivalent to y ?

☐ A) $\frac{5x - 4z}{20x^2z^2}$

☐ B) $\sqrt{\frac{5x - 4z}{20x^2z^2}}$

☐ C) $\frac{1}{4xz^2 - 5x^2z}$

☐ D) $\sqrt{\frac{1}{4xz^2 - 5x^2z}}$

Submit All

Question 18 of 22

Next >

21

x	$g(x)$
-21	2
-9	0
15	4

The table shows three values of x and their corresponding values of $g(x)$, where $g(x) = \frac{f(x)}{(x+3)}$ and f is a linear function. What is the y-intercept of the graph of $y = f(x)$ in the xy-plane?

- ☐ A) (0,-9)
- ☐ B) (0,3)
- ☒ C) (0,9)
- ☐ D) (0,7)

Submit All

Question 21 of 22

Next >