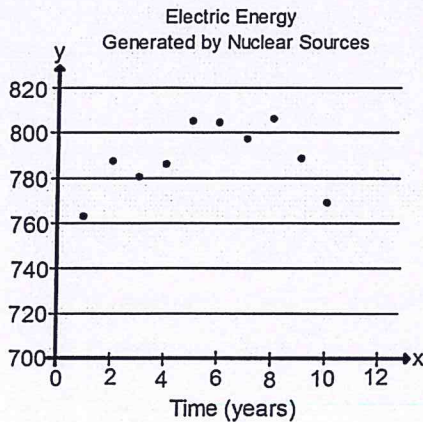


## Bellwork Alg 2 Thursday, March 14, 2019

1. Two different points on a number line are both 3 units from the point with coordinate  $-4$ . The solution to which of the following equations gives the coordinates of both points?

- A)  $|x + 4| = 3$     B)  $|x - 4| = 3$     C)  $|x + 3| = 4$     D)  $|x - 3| = 4$

2. The scatterplot below shows the amount of electric energy generated, in millions of megawatt-hours, by nuclear sources over a 10-year period.



Of the following equations, which best models the data in the scatterplots?

- A)  $y = 1.674x^2 + 19.76x - 745.73$     B)  $y = -1.674x^2 - 19.76x - 745.73$   
C)  $y = 1.674x^2 + 19.76x + 745.73$     D)  $y = -1.674x^2 + 17.76x + 745.73$

3. In the  $xy$ -plane, the graph of  $y = 3x^2 - 14x$  intersects the graph of  $y = x$  at the points  $(0,0)$  and  $(a,a)$ . What is the value of  $a$ ?

4. A group of friends decided to divide the \$800 cost of a trip equally among themselves. When two of the friends decided not to go on the trip, those remaining still divided the \$800 cost equally, but each friend's share of the cost increased by \$20. How many friends were in the group originally?

# Bellwork Alg 2 Thursday, March 14, 2019

Answers

1. Two different points on a number line are both 3 units from the point with coordinate -4. The solution to which of the following equations gives the coordinates of both points?

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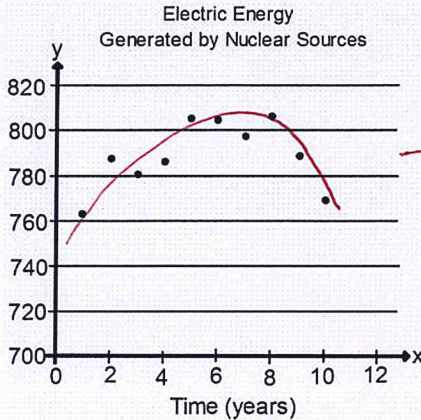
$d = \text{distance between pts A \& B}$

$d = 3$   
one pt is -4

2 possible answers:  
 $d = |x - (-4)|$  or  $d = |-4 - x|$

$d = |A - B|$

2. The scatterplot below shows the amount of electric energy generated, in millions of megawatt-hours, by nuclear sources over a 10-year period.



→ parabolic shape  
opens down → a is negative  
appears to have a pos y-int therefore c is pos

Of the following equations, which best models the data in the scatterplots?

A)  $y = 1.674x^2 + 19.76x - 745.73$

B)  $y = -1.674x^2 - 19.76x - 745.73$

C)  $y = 1.674x^2 + 19.76x + 745.73$

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3. In the  $xy$ -plane, the graph of  $y = 3x^2 - 14x$  intersects the graph of  $y = x$  at the points  $(0, 0)$  and  $(a, a)$ . What is the value of  $a$ ?

use substitution

$$\begin{aligned} x &= 3x^2 - 14x \\ -x & \quad -x \\ 0 &= 3x^2 - 15x \\ 0 &= 3x(x - 5) \\ x &= 0, 5 \end{aligned}$$

$a = 5$

4. A group of friends decided to divide the \$800 cost of a trip equally among themselves. When two of the friends decided not to go on the trip, those remaining still divided the \$800 cost equally, but each friend's share of the cost increased by \$20. How many friends were in the group originally?

$x = \text{\# friends in original group}$

orig avg. cost =  $\frac{800}{x}$

avg cost after 2 friends drop out =  $\frac{800}{x-2}$

10 friends in the original group

$$x(x-2) \left( \frac{800}{x-2} \right) = \left( \frac{800}{x} + 20 \right) x(x-2)$$

$$\begin{aligned} 800x &= 800(x-2) + 20x(x-2) \\ 800x &= 800x - 1600 + 20x^2 - 40x \end{aligned}$$

$$\begin{aligned} 0 &= \frac{20x^2}{20} - \frac{40x}{20} - \frac{1600}{20} \\ 0 &= x^2 - 2x - 80 \\ 0 &= (x-10)(x+8) \\ x &= 10, -8 \end{aligned}$$