

Algebra 2 Calculator Items

NCTM 2008

TI Booth Presentation

John Hanna

jehanna@optonline.net

www.johnhanna.us

What is the solution set of $|x - 1| = 2x + 3$?

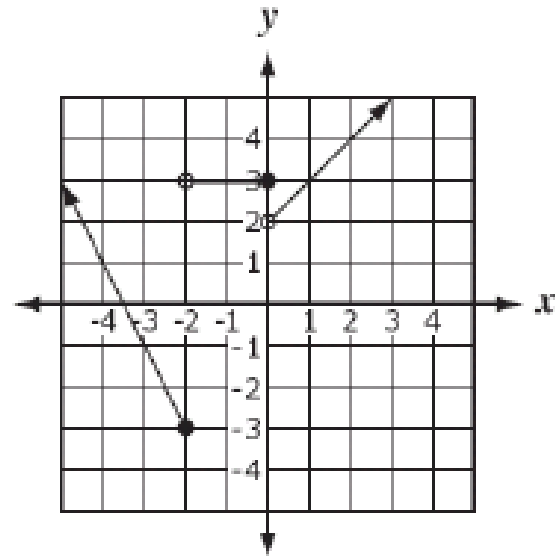
A. $\{-4\}$

B. $\{-\frac{2}{3}\}$

C. $\{-4, -\frac{2}{3}\}$

D. \emptyset

Consider the graph below.



Which function is best represented by this graph?

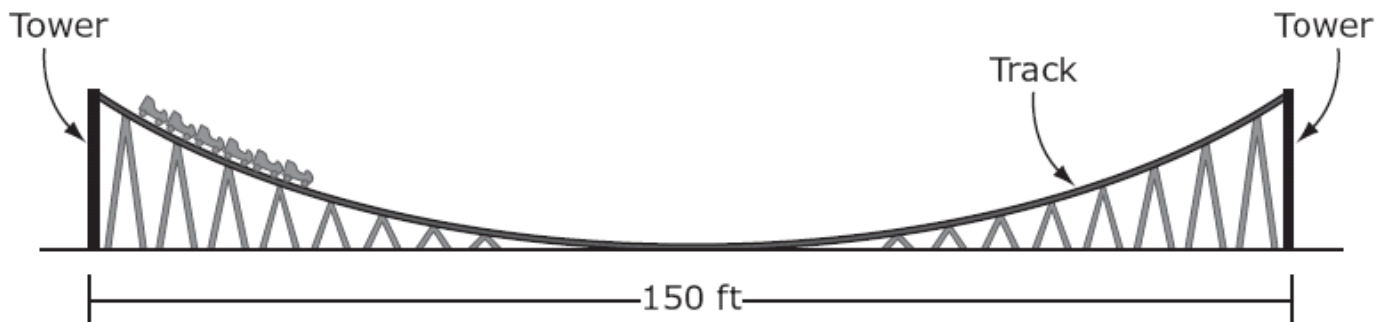
A.
$$y = \begin{cases} -2x - 3\frac{1}{2}, & x \leq -2 \\ 3, & -2 < x \leq 0 \\ x + 2, & x > 0 \end{cases}$$

C.
$$y = \begin{cases} -2x - 7, & x \leq -2 \\ 3, & -2 < x \leq 0 \\ x + 2, & x > 0 \end{cases}$$

B.
$$y = \begin{cases} -2x - 7, & x \leq -2 \\ 3, & -2 < x \leq 0 \\ 2x, & x > 0 \end{cases}$$

D.
$$y = \begin{cases} -2x - 7, & x \leq -2 \\ 3x, & -2 < x \leq 0 \\ x + 2, & x > 0 \end{cases}$$

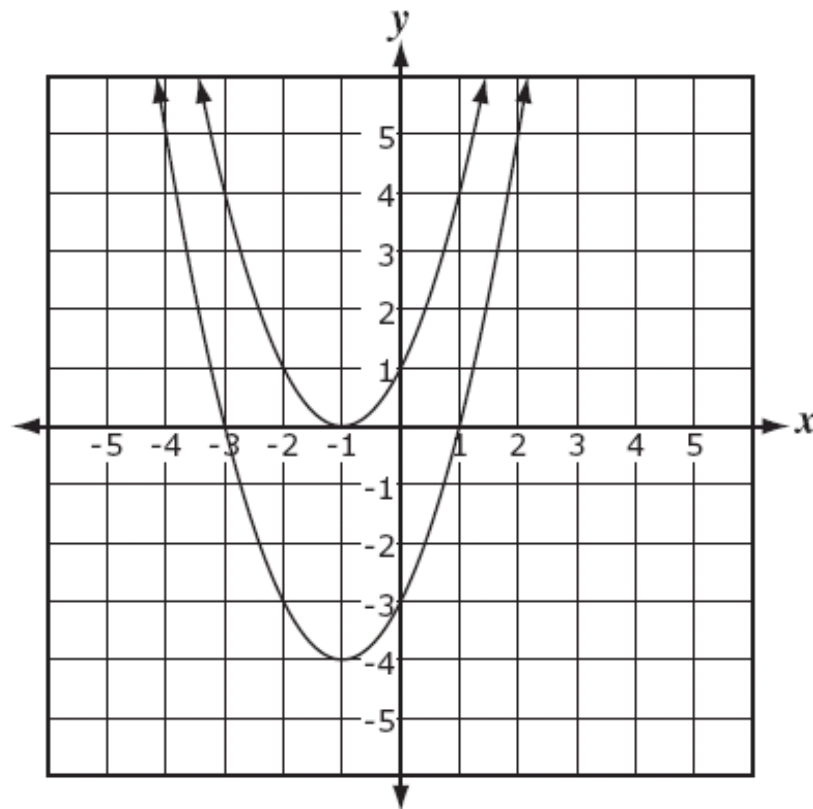
Consider the diagram below.



The function $h(x) = \frac{1}{98}x^2$ describes $h(x)$, the height of part of a rollercoaster track, where x is the horizontal distance in feet from the center of this section of the track. The towers that support this part of the track are the same height and are 150 feet apart. Which is the best estimate of the height of the towers?

- A. 57.4 feet
- B. 85.7 feet
- C. 121.2 feet
- D. 229.6 feet

The two quadratic functions graphed in the figure below are vertical translations of each other.



The equation for one of the functions is $y = x^2 + 2x - 3$. Write an equation that will describe the graph of the other function. Explain your reasoning.

Solve $5e^{6x} + 4 = 13$ for x . Show or explain your work.

A car has an original value of \$20,000. The value decreases at a rate of 18% each year.

Part A Write a function where $f(x)$ represents the value of the car in dollars and x represents years.

Part B After how many years will the car be worth less than $\frac{1}{2}$ of the original value? Show or explain your work.

A group of harvestmen was asked to scythe two fields. The first field was twice the size of the other. Half of the day the whole group worked on the bigger field, in the afternoon the group divided into half. The first group finished the whole field by the end of the day. The second group went to scythe the smaller field and worked until the end of the day too. However a small piece of this field was left undone. The following day the rest of the field was scythed. It took the whole day to finish it by one harvestman. How many harvestmen were in the group?

Questions
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