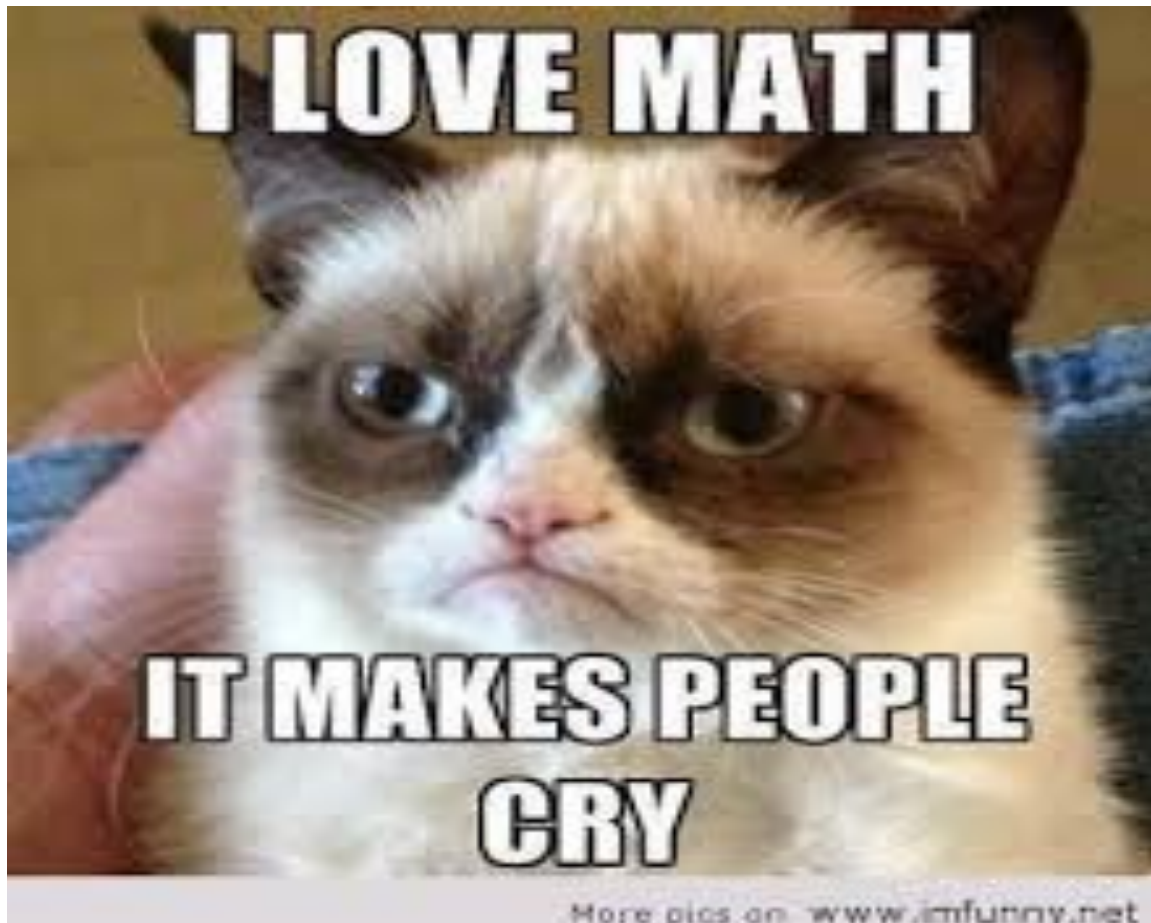


Solving Systems of Equations Graphically

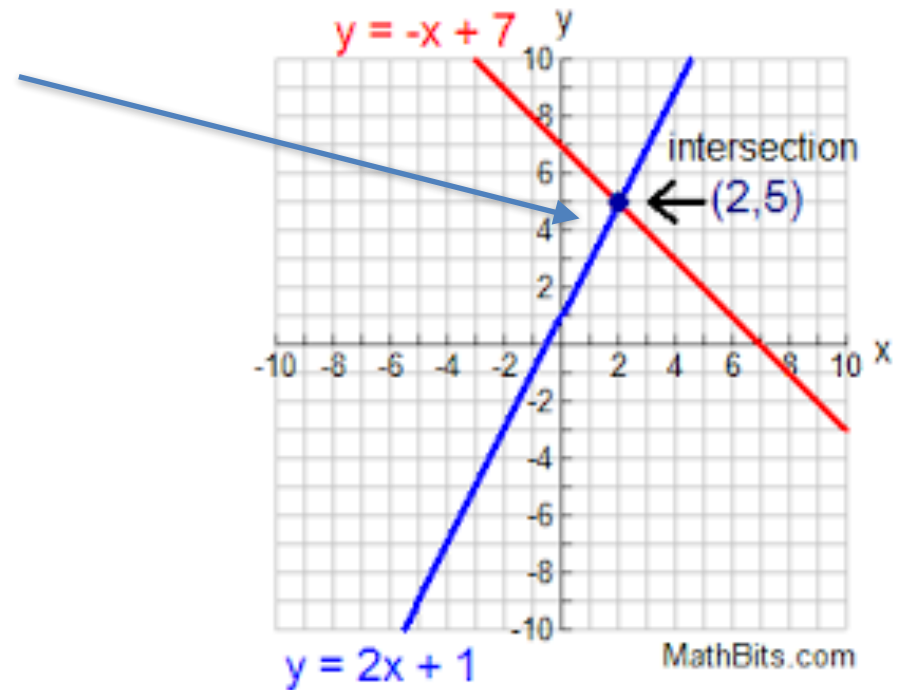


By the end of this lesson, I will be able to answer the following questions...

1. What is a system of equations?
2. How do I use graphing to solve a system of equation?
3. How can systems of equations be used to model real-world events?

Vocabulary

1. The solution to a system is an ordered pair that satisfies the variables in BOTH equations. Graphically, the solutions to a system of equations is the intersection of the graphs in the system.



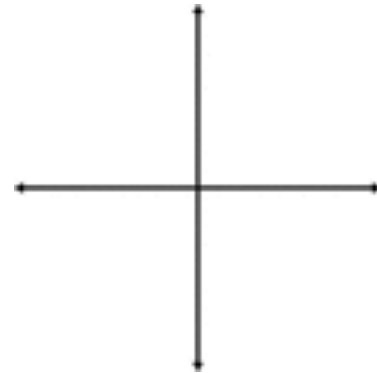
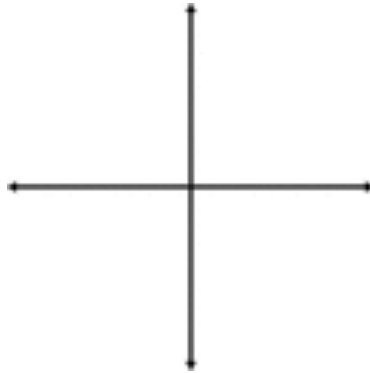
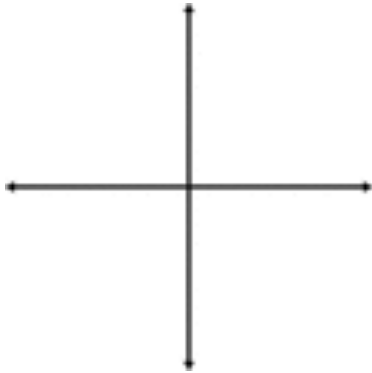
Prerequisite Skills with Practice

Visualizing points of intersect of a system of equations involving a parabola and line.....

Two Solutions

One Solution

No Solutions



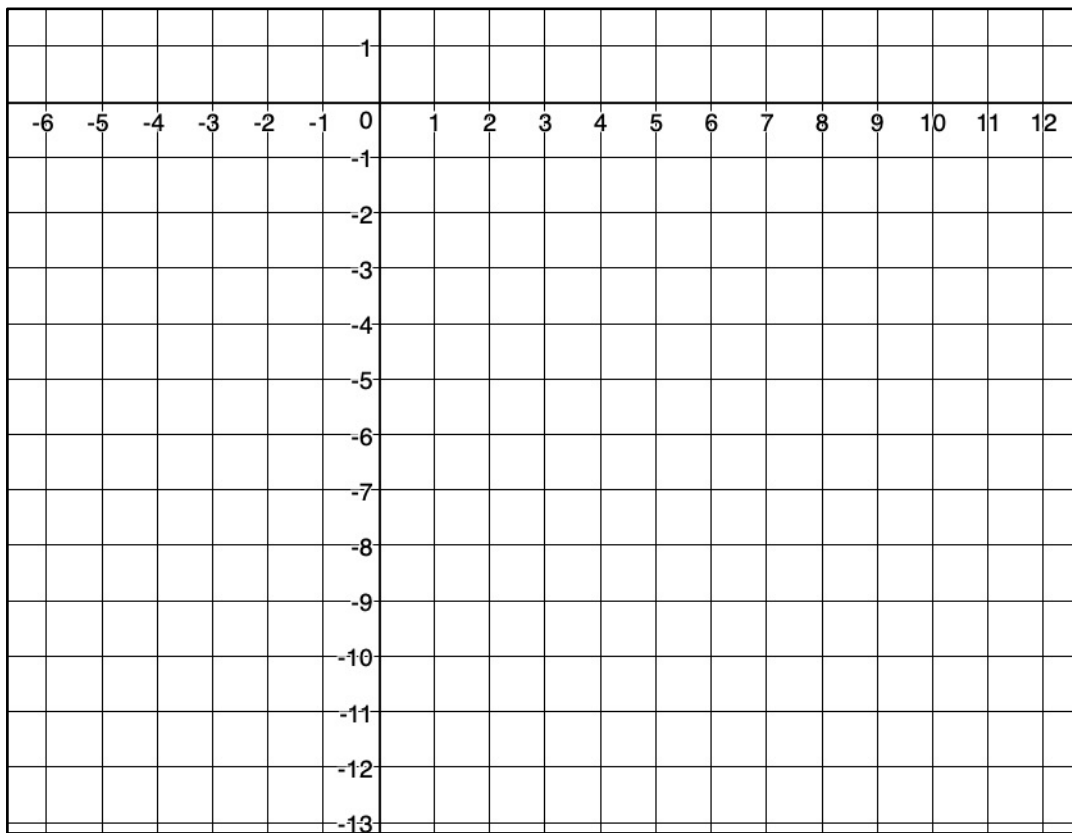
Calculator Activity - Finding Point of Intersection

$$\begin{cases} y = -(x-2)^2 + 4 \\ y = -x \end{cases}$$

$$\begin{cases} y = \sqrt{x+3} \\ y = -\sqrt{x+3} \end{cases}$$

Graph the system of equations below to determine the real solution(s), if any exist.

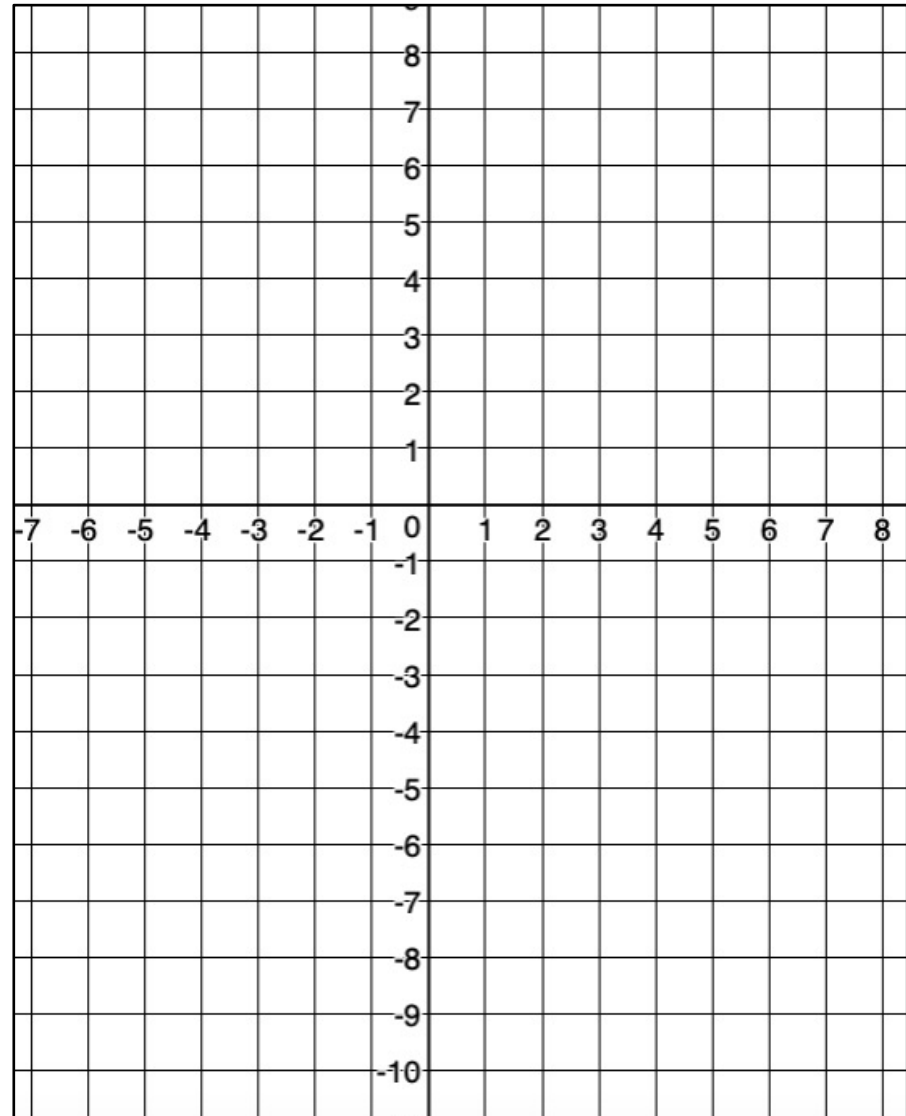
$$\begin{cases} y = -2(x-4)^2 \\ y = |x-4| - 10 \end{cases}$$



- Graph the system of equations below to determine the real solution(s), if any exist.

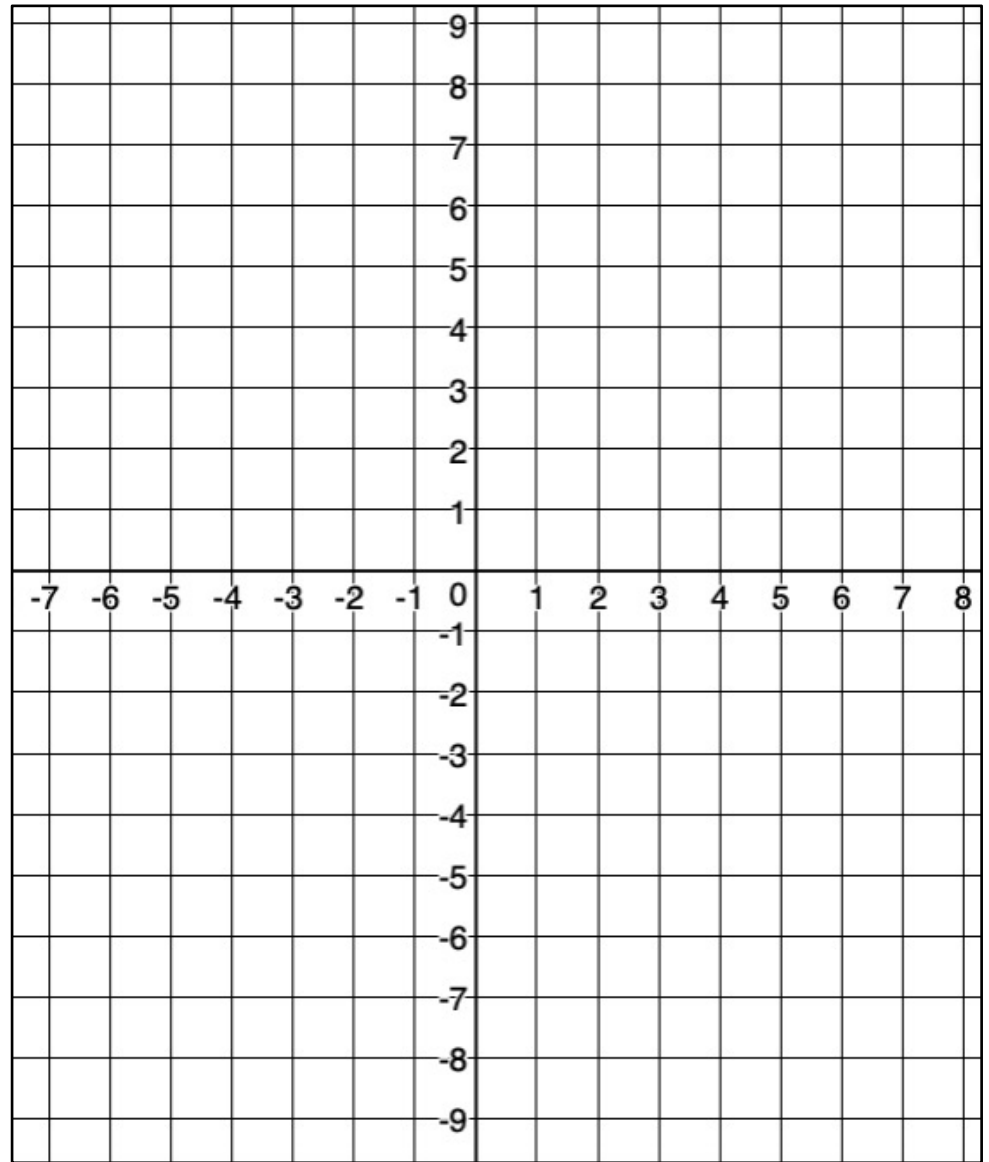
$$\begin{cases} y = -\frac{1}{2}x^3 \\ y = -\sqrt{x+2} - 2 \end{cases}$$

- Solve the system above algebraically by substitution.

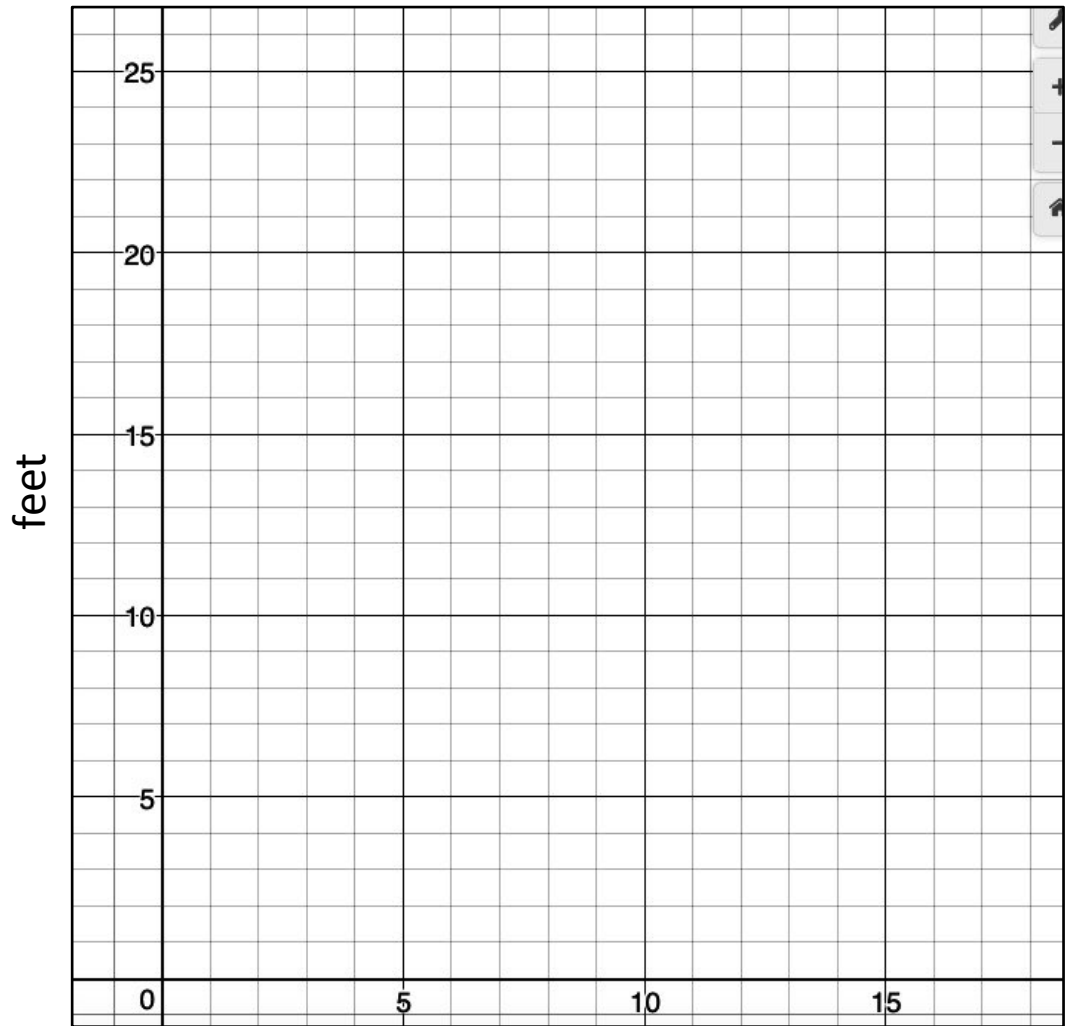


- Graph the system of equations below to determine the real solution(s), if any exist.

$$\begin{cases} y = (x+3)^2 \\ y = -(x-3)^2 \end{cases}$$



A rocket is launched from the ground and follows a parabolic path represented by the equation $y = -(x-5)^2 + 25$. At the same time, a flare is launched from a height of 18 feet and follows a straight path represented by the equation $y = -x + 18$. Using the accompanying set of axes, graph the equations that represent the paths of the rocket and the flare, and find the coordinates of the point or points where the paths intersect.



feet

THE END



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