

SM2 7.2: Systems of Quadratic Equations

Using desmos.com/calculator, solve each system. Write your answer(s) as a point (x, y) . Round decimals to the nearest hundredth.

1)
$$\begin{cases} y = x^2 - 12x - 45 \\ y = 3x - 45 \end{cases}$$

2)
$$\begin{cases} y = x^2 - 7x + 10 \\ y = -\frac{5}{6}x + \frac{1}{2} \end{cases}$$

3)
$$\begin{cases} y = x^2 + 5x - 3 \\ y = 2x - 10 \end{cases}$$

4)
$$\begin{cases} y = -4x^2 + 7x + 12 \\ y = 7x + 12 \end{cases}$$

5)
$$\begin{cases} y = x^2 - 11x + 28 \\ y = -3x + 12 \end{cases}$$

6)
$$\begin{cases} y = 5x^2 + 4 \\ y = 4 \end{cases}$$

7)
$$\begin{cases} y = x^2 - 9x \\ y = -8x \end{cases}$$

8)
$$\begin{cases} y = x^2 - 2x - 3 \\ y = -\frac{3}{2}x - 4 \end{cases}$$

9)
$$\begin{cases} y = x^2 + x \\ y = 3x - 1 \end{cases}$$

10)
$$\begin{cases} y = .25x^2 + 5x - 3.4 \\ y = -4.5x + 7.5 \end{cases}$$

11)
$$\begin{cases} y = x^2 + 1 \\ y = x^2 - 1 \end{cases}$$

12)
$$\begin{cases} y = x^2 - 1 \\ y = 2x^2 - 3 \end{cases}$$

- 13) A car begins at rest and accelerates. Its distance in meters is given by $D = 3t^2$, with t measured in seconds. A second car, 4 meters ahead, is traveling at a constant speed of 15 meters per second. Its distance in meters is given by $D = 15t + 4$, with t measured in seconds. How long after the first car accelerates until the cars are side by side?
- 14) A year-round ski shop sells both snowboarding and ski equipment. The revenue from selling snowboards can be modeled by the function $R = -1.5s^2 + 30s$, for which R is the revenue in hundreds of dollars from selling s sets of equipment. The revenue from selling skis can be modeled by the function $R = 150s$. Is there ever a time when the revenue from selling skis is the same as the revenue from selling snowboards?