

## Types of Systems

Name the type of system and solve.

1. 
$$\begin{cases} y = 2x - 4 \\ 4x - 2y = 8 \end{cases}$$

2. 
$$\begin{cases} y = \frac{1}{3}x - 1 \\ 3x - 10 = 8y \end{cases}$$

3. 
$$\begin{cases} x - y = 5 \\ y - x = -3 \end{cases}$$

4. 
$$\begin{cases} x = 3 \\ 2y - 3 = 1 \end{cases}$$

5. 
$$\begin{cases} 5y = 4x - 1 \\ 4x + 5y = -9 \end{cases}$$

6. 
$$\begin{cases} 2x - 3y = 6 \\ y = \frac{2}{3}x - 2 \end{cases}$$

7. 
$$\begin{cases} y = x^2 + 2 \\ y = 1 \end{cases}$$

8. 
$$\begin{cases} y = |x| + 2 \\ y = -|x| \end{cases}$$

$$9. \begin{cases} y - x = 4 \\ 2x + 2y = -8 \end{cases}$$

$$10. \begin{cases} y = x^2 - 2 \\ y = 2 \end{cases}$$

11. What are the different possible number of solutions (i.e. points of intersection) for the system  $\begin{cases} y = f(x) \\ y = g(x) \end{cases}$  if the graphs of  $f(x)$  and  $g(x)$  are a parabola and a line? Draw pictures to support your answer.

12. What are the different possible number of solutions (i.e. points of intersection) for the system  $\begin{cases} y = f(x) \\ y = g(x) \end{cases}$  if  $f(x) = 2^x$  and the graph of  $g(x)$  is a circle? Draw pictures to support your answer.