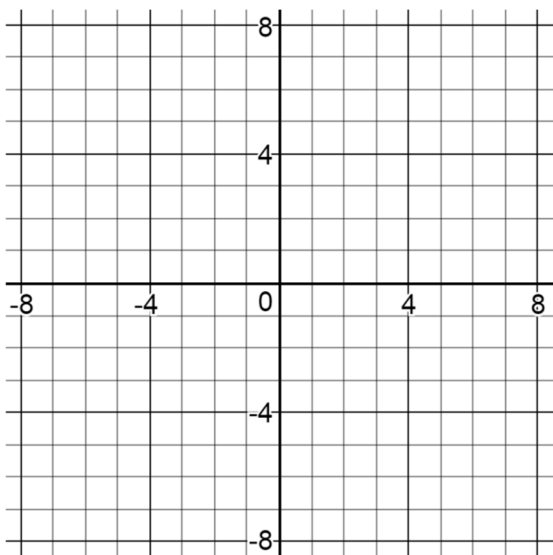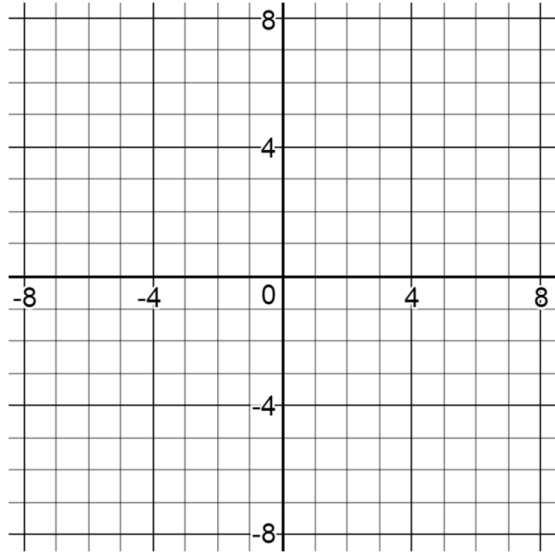# Solving Linear Systems by Graphing (ALG.SYS.02)

**Solve and classify each linear system by graphing.**
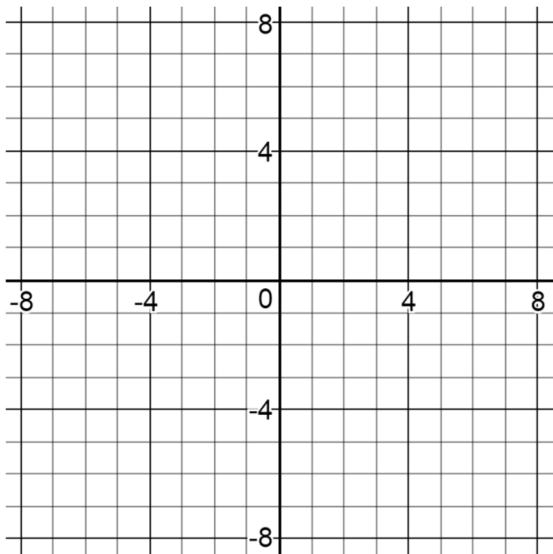
**1.**
$$\begin{cases} y + 4 = \dfrac{1}{3}(x + 6) \\ x - y = 4 \end{cases}$$
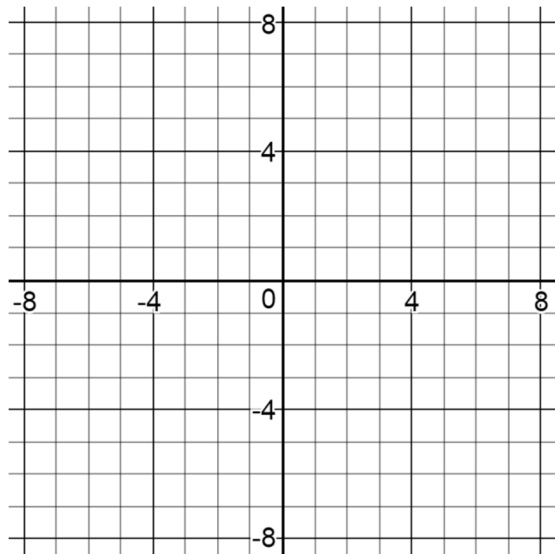
**2.**
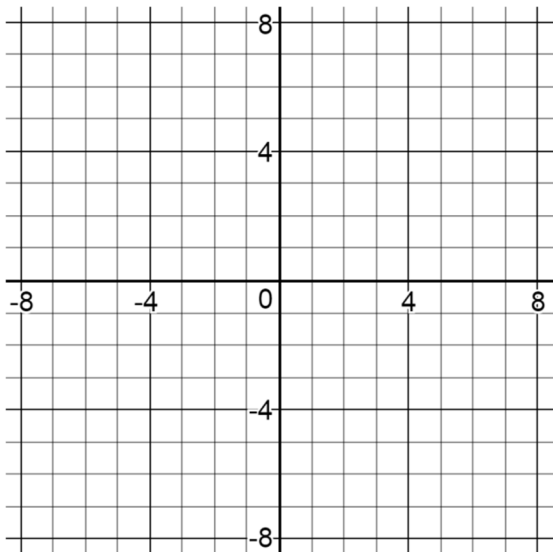$$\begin{cases} y = 3x - 2 \\ y = -x + 6 \end{cases}$$

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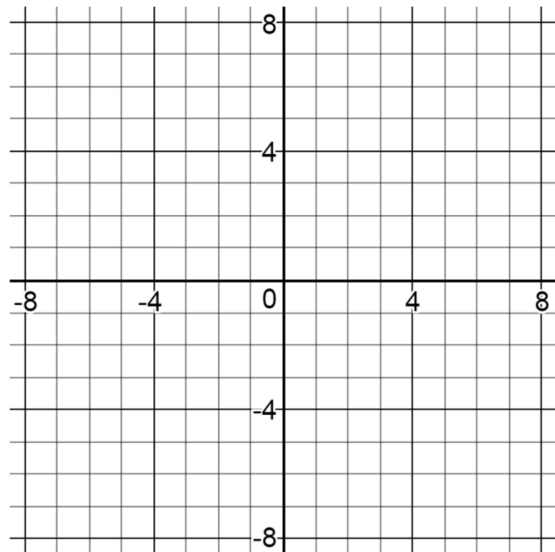$$\begin{cases} y = -\dfrac{1}{2}x + 4 \\ y = -3x - 1 \end{cases}$$

**4.**
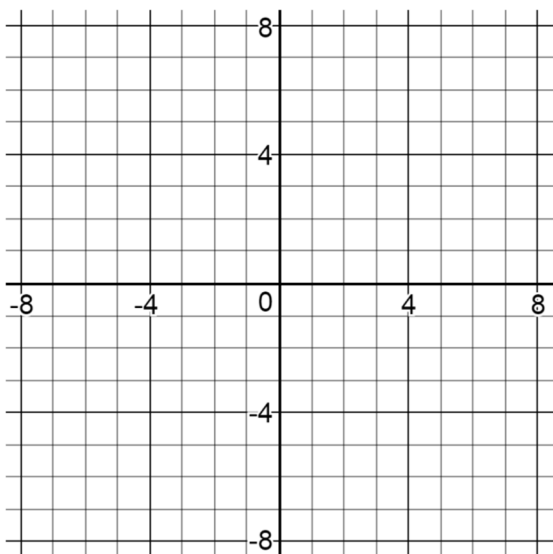$$\begin{cases} 4x - 3y = 6 \\ y - 2 = \dfrac{4}{3}(x - 3) \end{cases}$$

**5.** $\begin{cases} y = \dfrac{2}{3}x - 4 \\ y = \dfrac{2}{3}x + 1 \end{cases}$
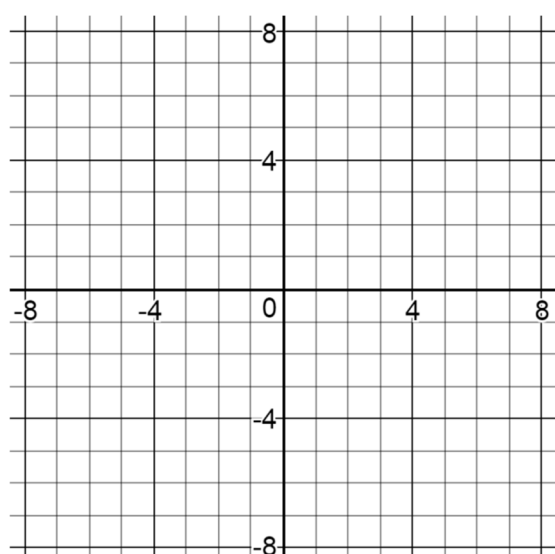
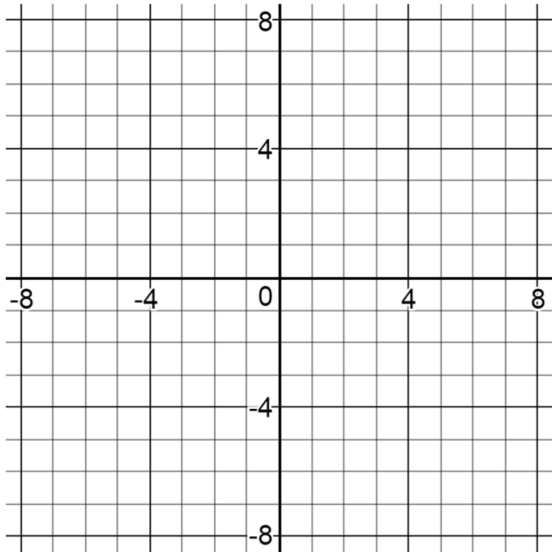**6.** $\begin{cases} y = \dfrac{4}{3}x - 5 \\ y = -\dfrac{2}{3}x + 1 \end{cases}$

**7.** $\begin{cases} 2x - 3y = -9 \\ y = 5 \end{cases}$
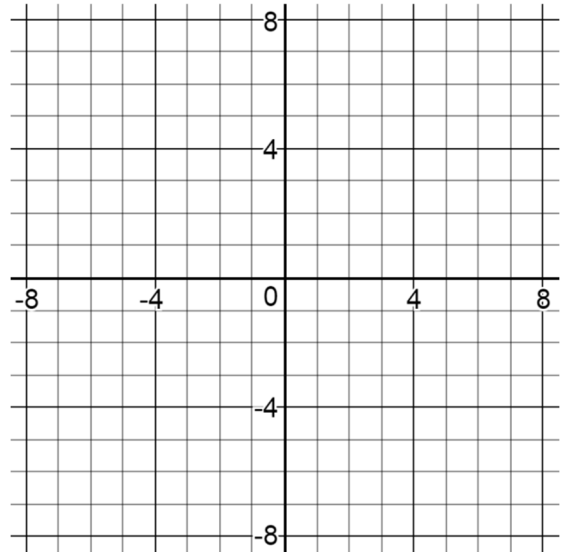
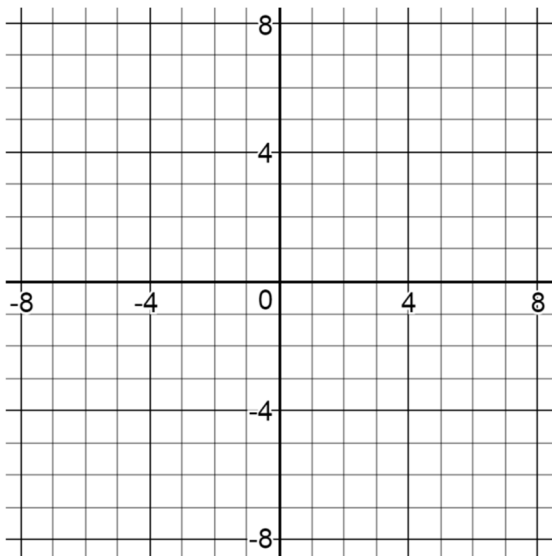**8.** $\begin{cases} y = 2x + 4 \\ y = \dfrac{1}{4}x - 3 \end{cases}$

**9.** $\begin{cases} y = -\dfrac{1}{2}x - 1 \\ y = -\dfrac{3}{2}x + 3 \end{cases}$
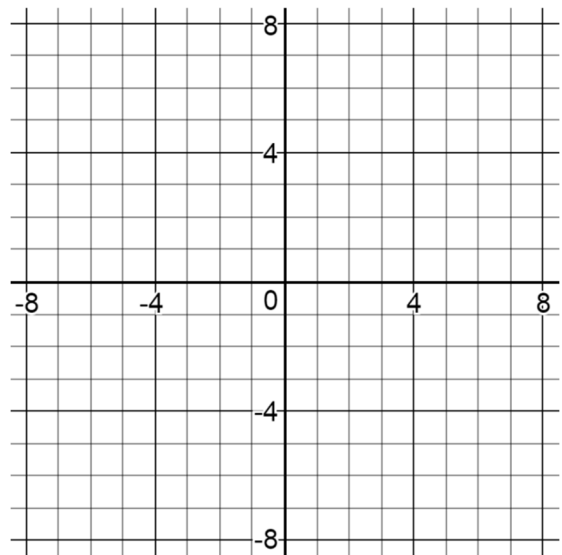
**10.** $\begin{cases} y = -3x - 1 \\ 6x + 2y = -8 \end{cases}$

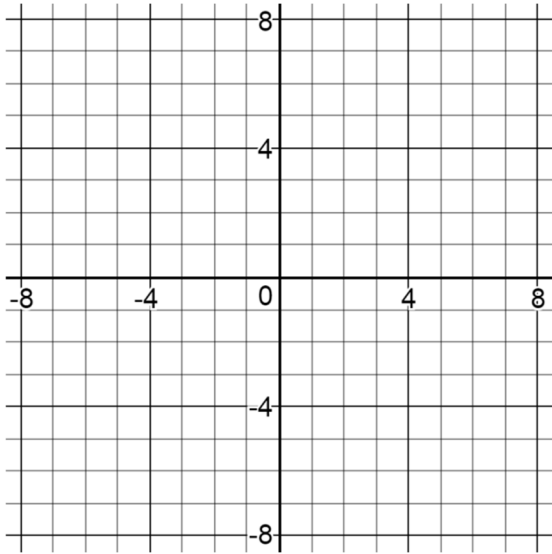**11.** $\begin{cases} y = \dfrac{1}{3}x + 1 \\ y = \dfrac{5}{3}x - 3 \end{cases}$
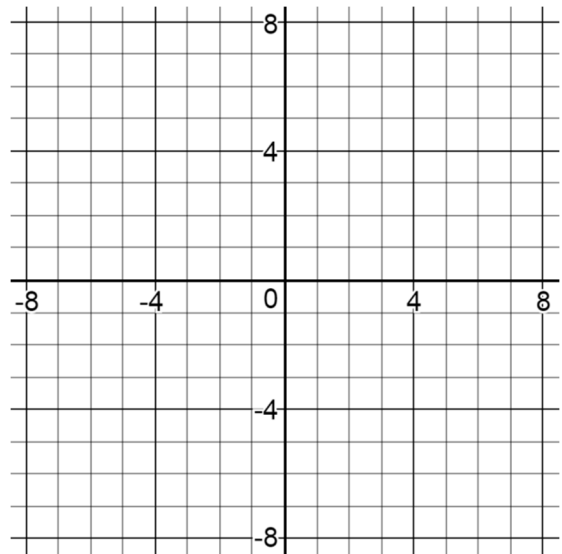
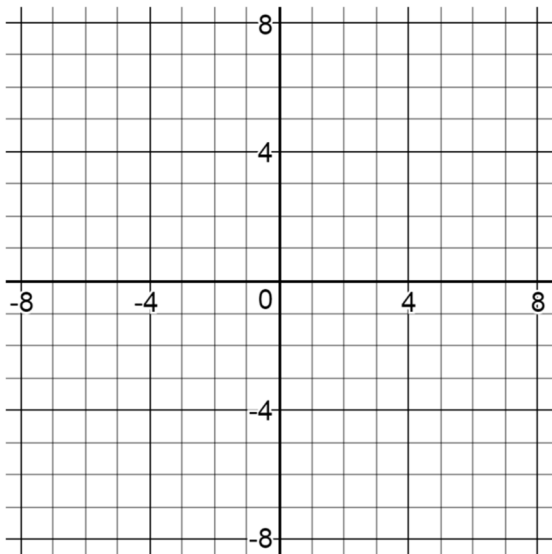**12.** $\begin{cases} y = 3x - 5 \\ y = 3x + 2 \end{cases}$

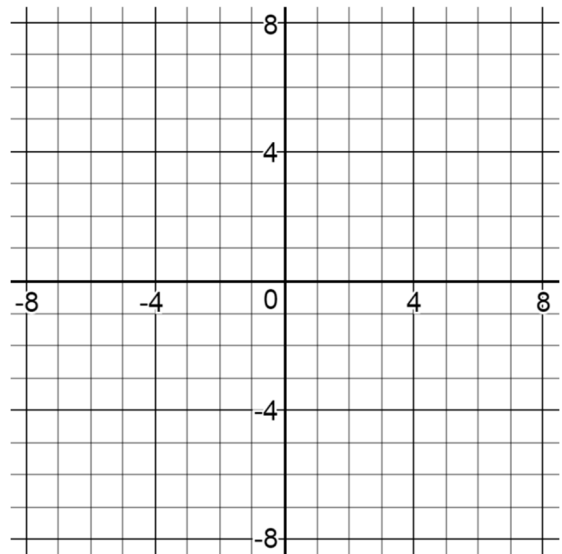**13.** $\begin{cases} 4 + y = x \\ -x = y + 2 \end{cases}$

**14.** $\begin{cases} y - 3 = 2(x + 2) \\ y = -\dfrac{2}{5}x - 5 \end{cases}$
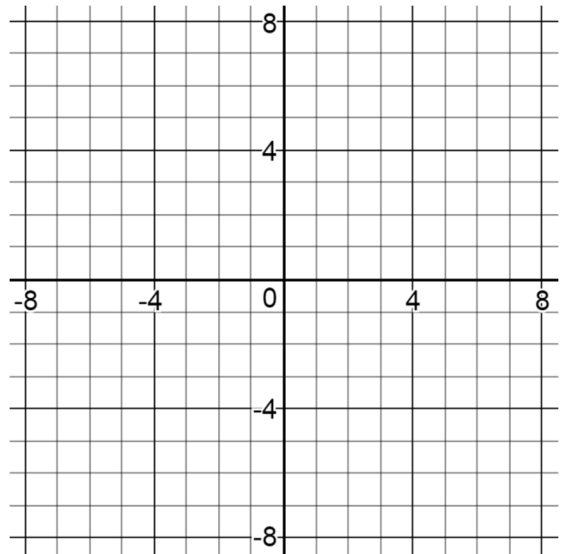
**15.** $\begin{cases} 9 = -7x - 3y \\ -3y - 9 - 7x = 0 \end{cases}$

**16.** $\begin{cases} -y = -1 + x \\ -3y = 12 + 3x \end{cases}$

**17.** $\begin{cases} 15x = 12y - 12 \\ -4y + 4 + 5x = 0 \end{cases}$



**18.** Determine the value of $k$ that will make the system intersect at the point $Q(1, -2)$.

$\begin{cases} y = 2x - 4 \\ y = -3x + k \end{cases}$

**19.** Determine values of $a$ and $b$ such that the linear system has a solution of $P(4, -9)$.

$\begin{cases} y = -\dfrac{1}{2}x + a \\ 2x + y = b \end{cases}$

**20.** Determine the values of $a$ and $b$ that will make the system intersect at the point $M(-5, 7)$.

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

**21.** Determine values of $a$ and $b$ that will make the system have no solution.

$\begin{cases} y = ax - 4 \\ y = -\dfrac{4}{3}x + b \end{cases}$

**22.** Determine values of $a$ and $b$ such that the linear system has infinite solutions.

$\begin{cases} 2x - 3y = a \\ y - 1 = b(x + 6) \end{cases}$

**23.** Determine the values of $a$ and $b$ that will make the system have an infinite number of solutions.

$\begin{cases} 2x - y = a \\ y = bx + 7 \end{cases}$