Homework 4

Systems of Linear Equations

Name: _____

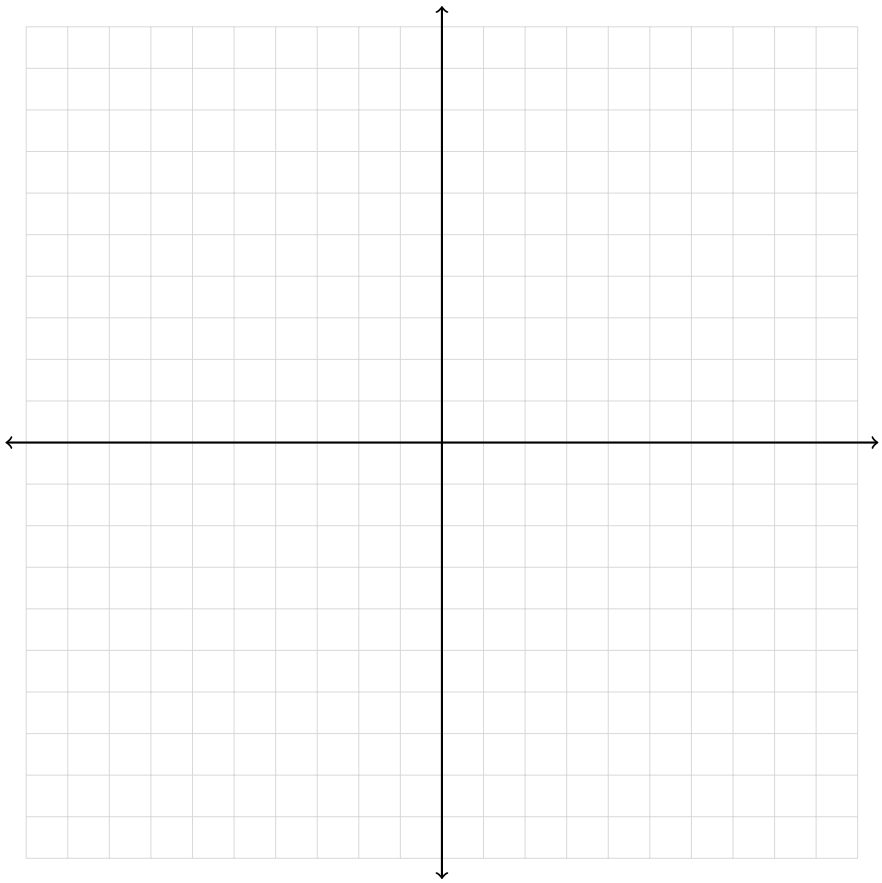
Show all work clearly. For graphing problems, label the intersection point and identify the solution to the system.

Part I: Solve Graphically

Solve each system graphically.

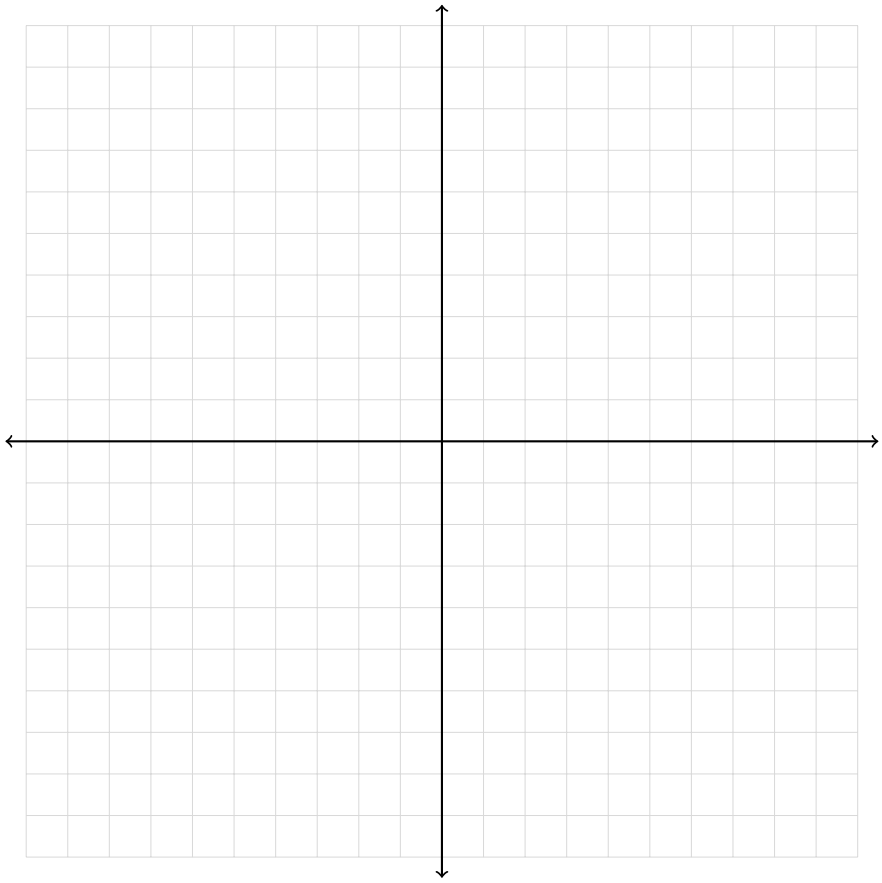
1.

$$\begin{cases} y = 2x - 5 \\ y = -\frac{1}{3}x + 2 \end{cases}$$



2. Solve graphically and by elimination:

$$\begin{cases} 12x - 8y = 48 \\ y - 4 = -2(x - 2) \end{cases}$$



Part II: Solve Algebraically

Solve each system using substitution or elimination.

(a)

$$\begin{cases} 12x - 6y = -6 \\ \frac{3}{2}x + \frac{5}{3}y = 5 \end{cases}$$

(b)

$$\begin{cases} 16x - 8y = 40 \\ 2x + y = 7 \end{cases}$$

(c)

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

Part III: Applications

(a) Tickets for the Valentine Dance cost \$3 per person or \$5 per couple. If \$475 worth of tickets were sold and 180 people attended the dance, how many couples attended the dance?

(b) The sum of two numbers is 200 and their difference is 28. Find the two numbers.

(c) A movie theater sold 250 tickets for a show. Adult tickets cost \$12 and student tickets cost \$8. If the total amount collected was \$2600, how many adult tickets and how many student tickets were sold?