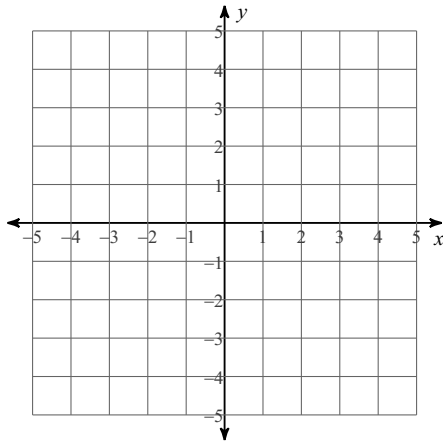


PRACTICE TEST (Linear Systems)

Solve each system by graphing. (5 points each)

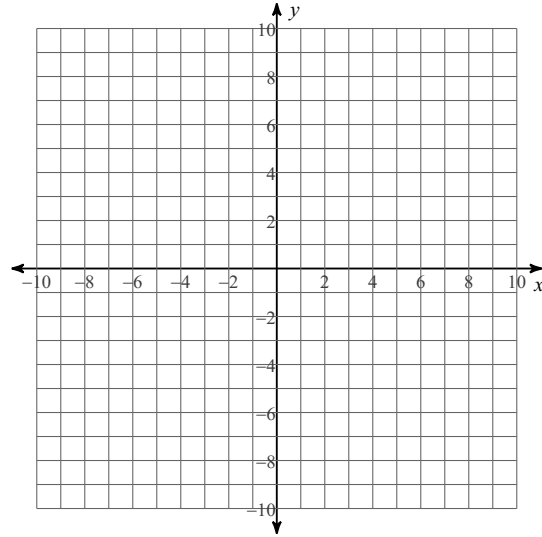
1) $y = \frac{1}{3}x + 2$

$y = -\frac{5}{3}x - 4$



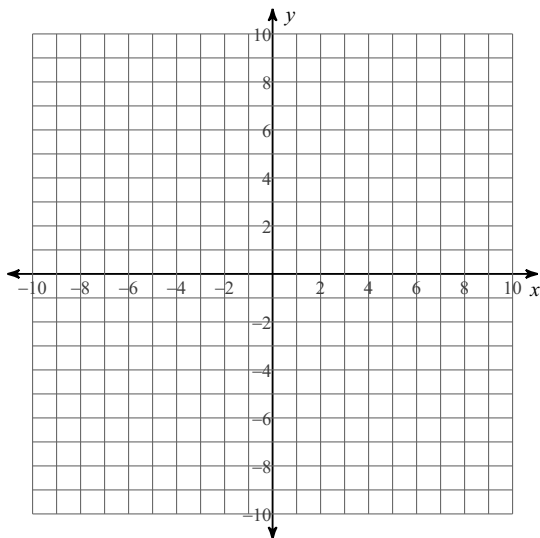
2) $-1 = -\frac{1}{4}y - \frac{3}{4}x$

$-2x + 16 = -2y$



3) $9y = -x - 72$

$-x = 2 - y$



Solve each system by elimination. Must show work for full credit. (5 points each)

$$4) \begin{cases} -x + 6y = 9 \\ x + 6y = 3 \end{cases}$$

$$5) \begin{cases} -6x - 6y = 30 \\ x - 3y = 27 \end{cases}$$

$$6) \begin{cases} \frac{11}{12}x = 1 + \frac{2}{3}y \\ 2x = 3y + 13 \end{cases}$$

Solve each system by substitution. Must show work for full credit. (5 points each)

$$7) \begin{cases} y = 3x - 7 \\ y = x - 5 \end{cases}$$

$$8) \begin{cases} -2x + y = -13 \\ 2x - y = 13 \end{cases}$$

$$9) \begin{cases} -5x + 3y = -9 \\ -7x - 2y = 6 \end{cases}$$

- 10) Danielle and Norachai are selling cheesecakes for a school fundraiser. Customers can buy pecan cheesecakes and strawberry cheesecakes. Danielle sold 2 pecan cheesecakes and 2 strawberry cheesecakes for a total of \$50. Norachai sold 4 pecan cheesecakes and 2 strawberry cheesecakes for a total of \$74. What is the cost each of one pecan cheesecake and one strawberry cheesecake?

- 11) Stephanie and Aliyah are selling fruit for a school fundraiser. Customers can buy small boxes of oranges and large boxes of oranges. Stephanie sold 9 small boxes of oranges and 10 large boxes of oranges for a total of \$114. Aliyah sold 3 small boxes of oranges and 1 large box of oranges for a total of \$24. Find the cost each of one small box of oranges and one large box of oranges.

Solve each system by elimination OR substitution. Must show work for full credit. (5 points each)

$$\begin{aligned} 12) \quad & 4x + 2y - z = -10 \\ & -4x - 2y + 3z = 2 \\ & -3x - 2y + z = 8 \end{aligned}$$

$$\begin{aligned} 13) \quad & -4x + 6y + 3z = 21 \\ & 4x - y - 2z = -22 \\ & -3x - y + 6z = 12 \end{aligned}$$

14) A shoe insole company produces two models of insoles: an extra thick insole for sports shoes and a thinner insole for dress shoes. The thick insole requires 6 min of manufacturing time and generates a profit of \$8. The thin insole requires 4 min of manufacturing time and produces a profit of \$9. The manufacturing line runs at most 12 h a day, or 720 min. Because of demand, the company manufactures at least twice as many thick insolves as thin insoles. Write the constraints, and graph the feasible region. Write the objective function. What is the maximum profit that can be generated in one day?

