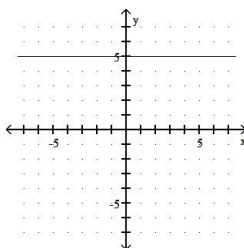
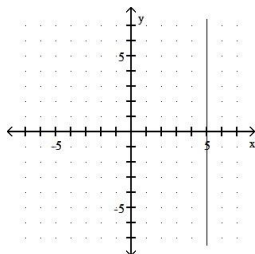
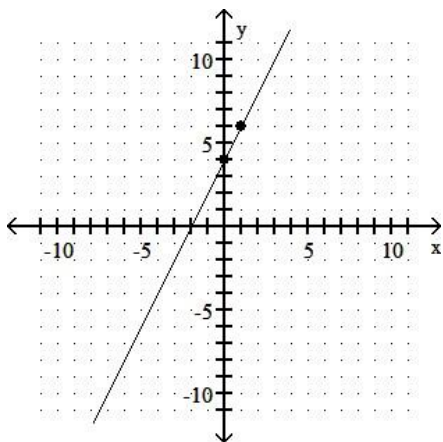


SHOW ALL WORK.

1. Write the equations of the lines:



2. Find k if the line through the points $(2, 4)$ and $(4, k)$ is to have a slope of $m = \frac{3}{2}$.
3. Write the equation of the line



4. The equation of a line is $5x - 7y = 28$ find the following:
- the x intercept (as an ordered pair)
 - the y intercept (as an ordered pair)
 - the slope of the line $5x - 7y = 28$
 - the equation of the line perpendicular to $5x - 7y = 28$ that passes through $(1, -6)$. Write answer in both slope intercept form as well as standard form.
 - the equation of the line parallel to $5x - 7y = 28$ that passes through $(1, -6)$. Write answer in both slope intercept form as well as standard form.
 - Graph the line $5x - 7y = 28$

5. Write the equation of the line given the following information. Leave answers in slope intercept form, when possible.

a. passes through the points $(7, -5)$ and $(-3, -5)$

b. passes through the points $(-1, 8)$ and $(-6, 2)$

c. $m = -\frac{5}{4}$ and passes through $(16, -1)$

d. m is undefined and passes through $(-3, -5)$

e. $m = \frac{2}{3}$ and it passes through $\left(-\frac{3}{4}, \frac{2}{5}\right)$

Solve the following systems of equations by the method of your choice. If there is a unique solution give it as an ordered pair or ordered triple. If there are infinitely many solutions or no solutions state that.

6.
$$\begin{aligned} 3x - 3y &= 6 \\ 2x - 2y &= -4 \end{aligned}$$

7.
$$\begin{aligned} 7x - 3y &= 4 \\ 2x + 5y &= 7 \end{aligned}$$

8.
$$\begin{aligned} \frac{1}{3}x + \frac{1}{4}y &= 1 \\ x - \frac{3}{2}y &= 4 \end{aligned}$$

9.
$$\begin{aligned} \frac{1}{3}x + \frac{1}{4}y &= 4 \\ 3x - 4y &= 0 \end{aligned}$$

10.
$$\begin{aligned} -x + y + 3z &= 6 \\ x + y + 2z &= 7 \\ 2x + 3y + z &= 4 \end{aligned}$$

11.
$$\begin{aligned} 2x - 5y &= 1 \\ -4x + 10y &= 6 \end{aligned}$$

12. A mixture of 8% disinfectant solution is to be made from 10% and 7% disinfectant solutions. How much of each solution should be used if 30 gallons of 8% solution are needed?

Set up the system of equations and solve by the method of your choice.

13. The Little Town Fine Arts Center charges \$21 per adult and \$10 per senior citizen for its performances. On a recent weekend when 559 people paid admission, the total receipts were \$7493. How many who paid were senior citizens? **Set up the system of equations** and solve by the method of your choice.

14. Solve the following systems of inequalities. Clearly indicate where the solution lies on the graph.

a)
$$\begin{aligned} y &\geq 2x - 1 \\ x + y &\leq -2 \end{aligned}$$

b)
$$\begin{aligned} y &< 3x + 2 \\ y &\leq -\frac{3}{4}x \end{aligned}$$