Solve the equation. Check your solution.

1. $3 - 2g = -1$
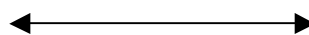
2. $-3w - 4 = -w$

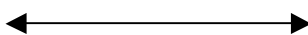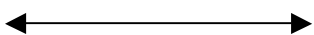**3.** $\dfrac{5x}{3} - \dfrac{7}{2} = \dfrac{x}{6} + \dfrac{1}{3}$

Solve the inequality. Then graph the solution.

4. $-3x + 8 \le x$

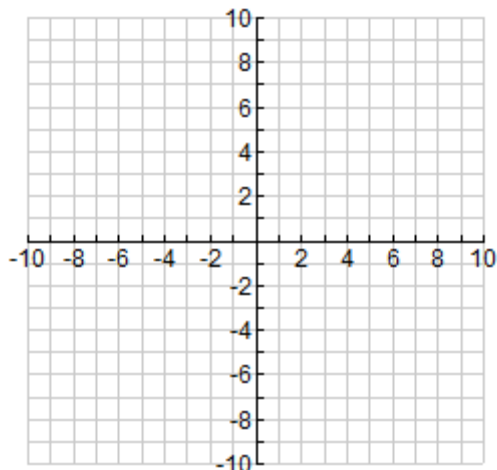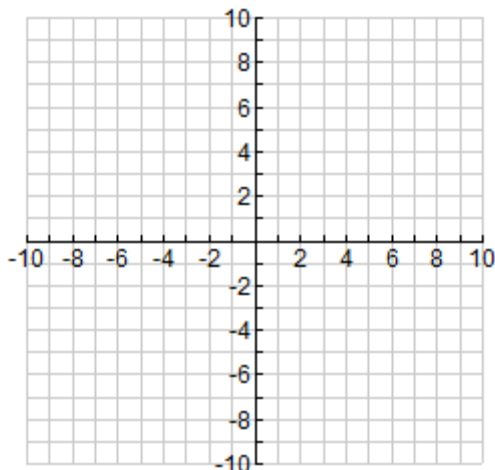**5.** $5 < 2x + 3 \le 15$

6. $2x + 5 > 2 - (x - 9)$

Graph the equation.

7. $y = x - 3$

8. $4x - 3y = -24$

Solve the equation.

9. $3|x-2|+1=22$

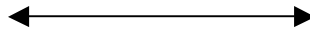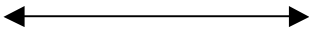**10.** $|2x - 10| = 8x$

Solve the Abs inequality. Then graph the solution

11. $|x+4|-12 \leq -5$

12. $5|x-1|+6>21$

Write an equation of the line that passes through the given point and satisfies the given condition.
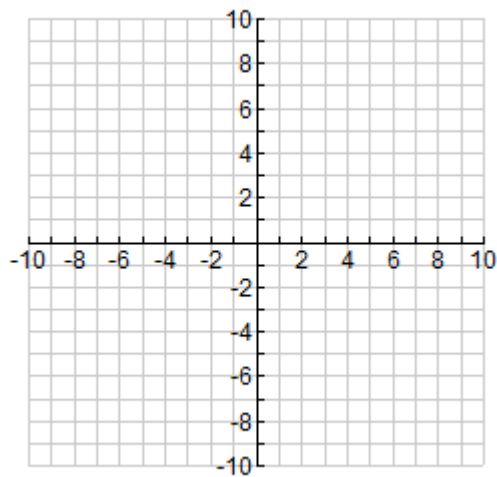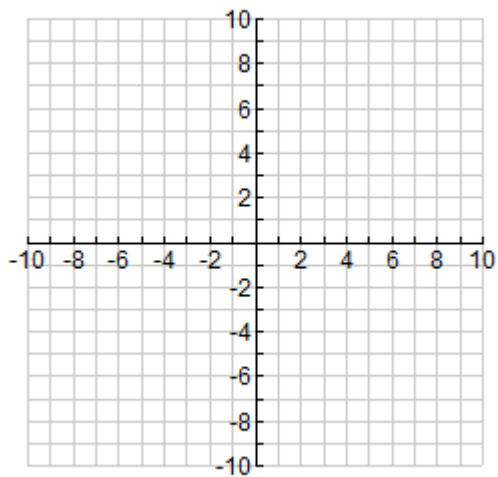
13. $(1, 2)$, $m = -4$

14. $(-8, 1)$; perpendicular to $2x-3y=7$

15. Write an equation that passes through the points $(2, -5)$ and $(-3, 20)$

Graph the linear system and estimate the solution. Then check the solution algebraically.

16. $y = 2x + 2$

$\quad y = x + 5$

17. $y = 2x$

$\quad y = -x + 3$

(graph with x and y axes ranging from -10 to 10)

(graph with x and y axes ranging from -10 to 10)

Solve the system using any algebraic method.

18. $2x + 2y = 6$

$\quad x + 3y = 5$

19. $-2x + 3y = -18$

$\quad y = -x + 4$

20. $2x - 5y = 9$

$\quad 6x - 15y = -3$

21. Solve the matrix equation for w, x, y, and z.

$$-2\begin{pmatrix} -2x & 6 \\ 1 & 8 \end{pmatrix} + 3\begin{pmatrix} 5 & w \\ -7 & 6 \end{pmatrix} = \begin{pmatrix} 7 & 0 \\ z & y \end{pmatrix}$$

22. **Use the matrices to the right to find the following:** $A = \begin{pmatrix} 4 & -8 \\ 0 & -2 \end{pmatrix}$ $B = \begin{pmatrix} -6 & 1 \\ 1 & 3 \end{pmatrix}$

a. $A - B$ b. $2B + A$ c. $A * B$ d. $B * A$

23. You and your sister decide to combine your weekly overtime earnings to buy a birthday gift for your mother. Your overtime rate is $18 per hour and your sister's overtime rate is $24 per hour. The total amount earned for the gift was $288. If you worked two more hours of overtime than your sister, how many overtime hours did each of you work?

a. Be sure to SPECIFICALLY identify your variables.

x= _____ y = _____

b. Write a system of equations to represent this situation

c. Solve the system. **Show Your Work. Do not just guess and check.**

24. A hair salon receives a shipment of 84 bottles of hair conditioner to use and sell to customers. The two types of conditioners received are type A, which is used for regular hair, and type B, which is used for dry hair. Type A cost $6.50 per bottle and type B costs $8.25 per bottle. The hair salon's invoice for the conditioner is $588. How many of each type of conditioner are in the shipment?

b. Be sure to SPECIFICALLY identify your variables.

x= _____ y = _____

b. Write a system of equations to represent this situation