16. Consider the following pair of points:

$$(2,\ -6) \text{ and } (1,\ 8)$$

Step 1. Determine the distance between the two points.

Step 2. Determine the midpoint of the line segment joining the pair of points.

17. Consider the following equation.

$$2x + 4y = 16$$

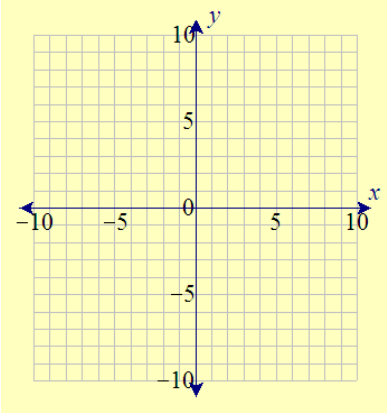
Step 1. Determine the x- and y- intercepts of the given equation, if possible. If one of the intercepts does not exist, state "absent" for that intercept.

x–intercept: (☐ , ☐) OR **A) absent**

y–intercept: (☐ , ☐) OR **A) absent**

Step 2. Graph the given equation by plotting the x and y intercepts on the graph below, if possible. If an intercept does not exist, use another point to plot the graph.

Answer:



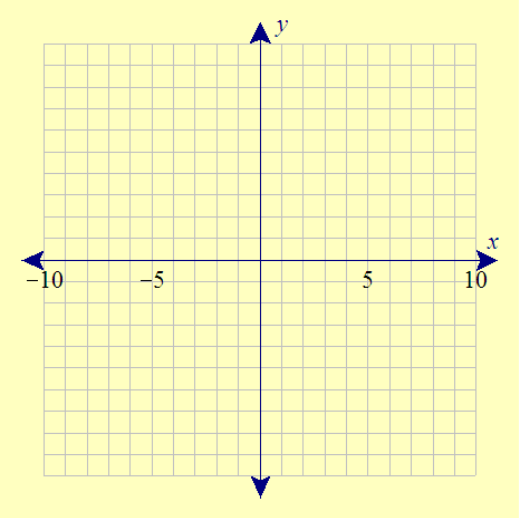
18. Find the slope of the line determined by the equation $-4x - 2y = -7$.
Please enter your answer in simplest form. If the slope is undefined state "Undefined".

19. Consider the following equation.

$$-4x - y = -11$$

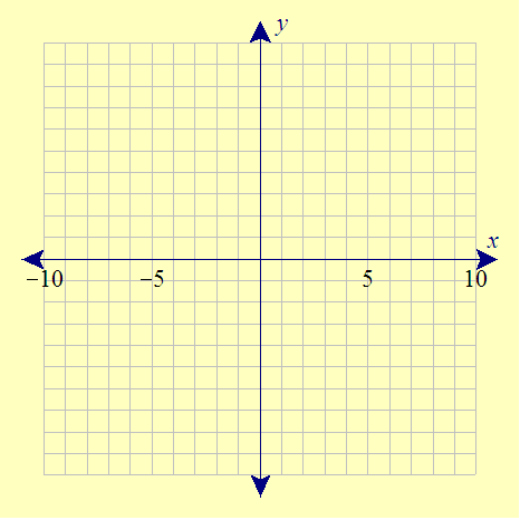
Step 1. Write the equation in slope-intercept form.

Step 2. Given x = 4, find the value for y and graph.



Answer: y = ☐

Step 3. Given x = 5, find the value for y and use the point to complete the graph of the line.



Answer: y = ☐

20. Write the slope-intercept form of the equation for the line that passes through the point $(0, 8)$ and has a slope $\frac{-3}{4}$.

Please enter your answer in simplest form.

21. Write the slope-intercept form of the equation for the line that passes through the points $(\ 2,\ 2\ )$ and $(\ -11,\ -8\ )$. Please enter your answer in simplest form.

22. Consider the following equation of a line. Reduce all fractions to lowest terms.

$$4x + 6y = 21$$

Step 1. Rewrite this equation in slope-intercept form.

Step 2. Find the equation, in slope-intercept form, for the line which is **parallel** to this line and passes through the point $(-3,\ 8)$.

23. Consider the following equation of a line. Reduce all fractions to lowest terms.

$$\frac{x - 5y}{2} = \frac{3x - 4}{4}$$

Step 1. Rewrite this equation in slope-intercept form.

Step 2. Find the equation, in slope-intercept form, for the line which is **perpendicular** to this line and passes through the point $(6,\ -7)$.

24. Consider the following two equations of a line. Reduce all fractions to lowest terms.

$$\frac{6x - 5y}{3} = x + 1 \quad \text{and} \quad -6y - 8x = 2x + 1$$

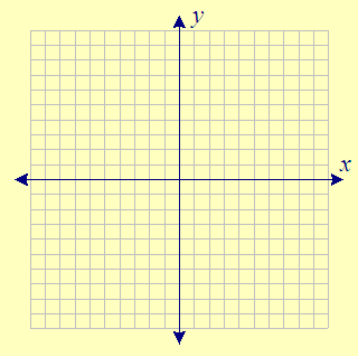
Step 1. Rewrite the <u>first</u> equation in slope-intercept form.

Step 2. Rewrite the <u>second</u> equation in slope-intercept form.

Step 3. Determine if these two lines are **perpendicular**.
Answer: A) Yes B) No

25. Graph the solution set of the following linear inequality:

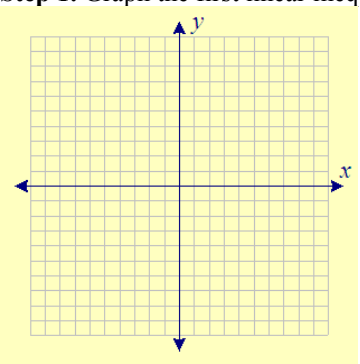
$$2x + 3y < 12$$



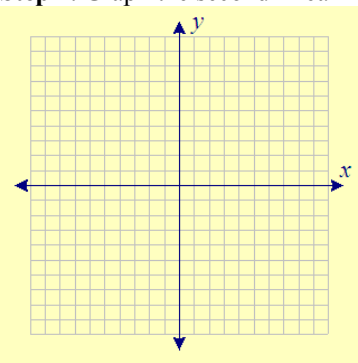
26. Solve the system of two linear inequalities graphically.

$3x + 4y < 24$ and $x \geq 3$

Step 1. Graph the first linear inequality.

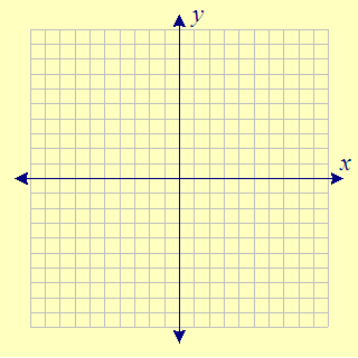


Step 2. Graph the second linear inequality.



Step 3. Choose the region with points that satisfy both inequalities:

A) the union of the individual solution sets



B) the intersection of the individual solution sets

27. Find the standard form of the equation for the circle described below.

Center $(-6, -2)$ and radius 2

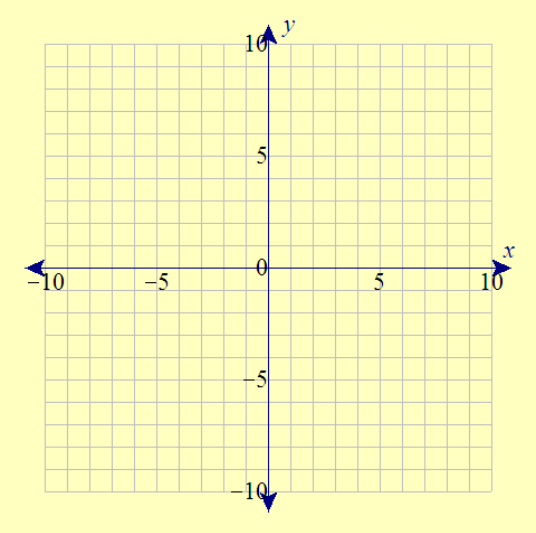
28. Consider the equation below.

$$(x - 9)^2 + (y - 7)^2 = 36$$

Step 1. Find the center (h, k), of this circle.

Step 2. Find the radius, r, of this circle.

Step 3. Graph the circle.



29. Consider the equation below.

$$x^2 + y^2 - 10x + 18y = -42$$

Step 1. Find the center (h, k), of this circle.

Step 2. Find the radius, r, of this circle.

Step 3. Graph the circle.