

solve: $3x+9y=3$



$$5x+4y=27$$

2. Find the equation of the line that contains the points $(-2, 4)$ and $(8, -1)$.

$$m = \frac{y-y}{x-x} = \frac{-1-4}{8-(-2)} = \frac{-5}{10} = -\frac{1}{2}$$

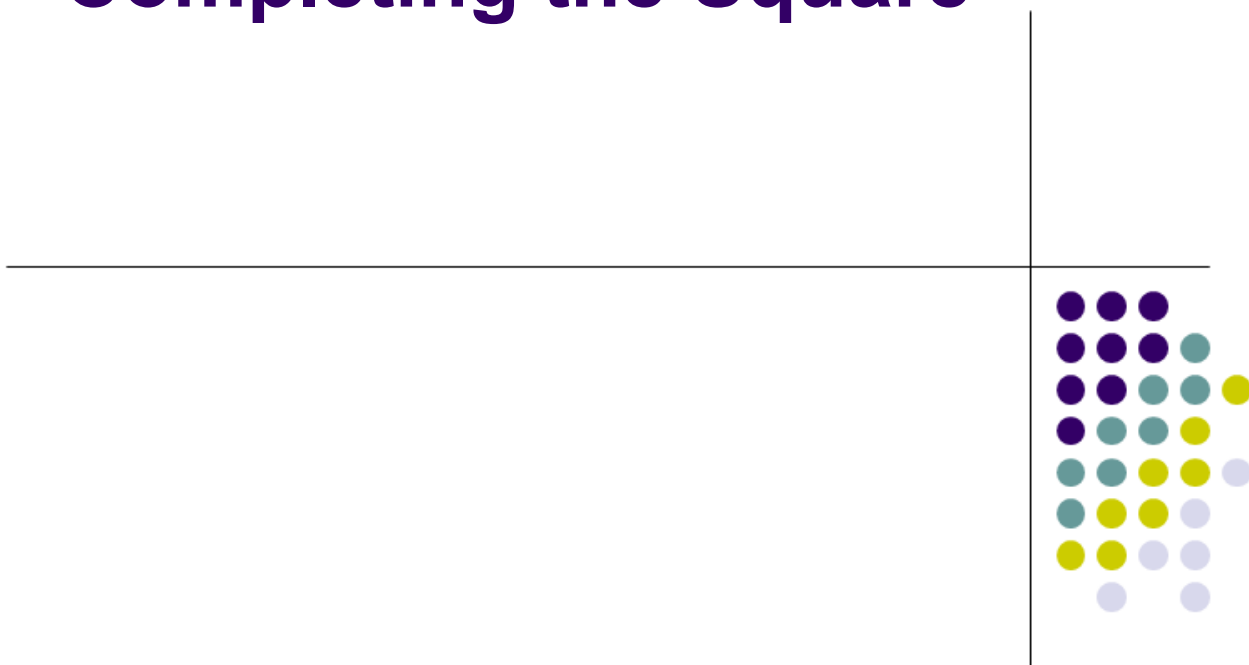
$$y-y = m(x-x)$$

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

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

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

Completing the Square



Complete the square to find the vertex form.



$$y = x^2 + 10x - 24$$

$$x^2 + 10x - 24 = y$$

① Move "C" to the other side

$$x^2 + 10x + 25 = y + 24 + 25$$

② factor out "a"

$$\left(\frac{10}{2}\right)^2 = 25$$

③ find new "C" term

$$\left(\frac{b}{2}\right)^2$$

add new C to both sides.

$$x^2 + 10x + 25 = y + 49$$

$$(x + 5)(x + 5)$$

$$\begin{array}{c} 25 \\ +5 \quad +5 \\ \hline 10 \end{array}$$

$$(x + 5)^2 = y + 49$$

④ factor the trinomial

Vertex form

$$(x + 5)^2 - 49 = y$$

move "c" back over

$$V: (-5, -49)$$

$$AOS: x = -5$$

$$\text{min: } -49$$

Solve

$$(x + 5)^2 = 0 + 49$$

$$\sqrt{(x + 5)^2} = \sqrt{49}$$

$$x + 5 = \pm 7$$

$$x = -5 \pm 7$$

$$x = -5 + 7 \quad x = -5 - 7$$

$$x = 2 \quad x = -12$$