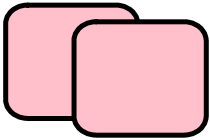


Complete the Square

* $y = x^2 + 6x - 9$

Answer

$y = (x+3)^2 - 18$



$y = (x^2 + 6x + 9) - 9 - 9$

a=1 *b=6*

FACTOR

$(x^2 + 6x + 9)$

$(x+3)(x+3)$

$y = (x+3)^2 - 18$

vertex $(-3, -18)$

(opp) *same*

$(\frac{-b}{2a})^2 = (\frac{-6}{2(1)})^2$

$= (-\frac{6}{2})^2$

$= (-3)^2 = 9$

Same Number but opposite sign

Complete the Square

$$y = x^2 + 12x + 1$$

$$y = (x^2 + 12x + 36) + 1 - 36$$

FACTOR

$$\uparrow \hat{6 \cdot 6}$$

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

$$\left(\frac{-12}{2}\right)^2 = (-6)^2 = 36$$

$$y = (x+6)(x+6)$$

$$y = (x+6)^2 - 35$$

Complete the Square Practice

1) $y = -2x^2 + 8x - 5$

2) $y = -x^2 + 6x - 10$

3) $y = x^2 + 4x + 1$

4) $y = 3x^2 + 6x + 2$

Put your work and answers on the side white board

$$3) \quad y = \left(x^2 + 4x + \frac{4}{1} \right) + 1 - \frac{4}{1}$$

FACTOR ↓ $\left(\frac{-4}{2(1)} \right)^2$

$$y = (x + 2)^2 - 3$$

$$1) y = -2x^2 + 8x - 5$$

$$y = (-2x^2 + 8x) - 5$$

GCF

$$y = -2(x^2 - 4x) - 5$$

complete the square

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

$$\left(\frac{-(-4)}{2(1)}\right)^2$$

$$\left(\frac{4}{2}\right)^2$$

$$(2)^2 = 4$$

$$-2(x^2 - 4x + 4) - 5 \quad | \quad +8$$

"-8"

$$-2(x^2 - 4x + 4) - 5 \quad | \quad +8$$

$$(-2x^2 + 8x - 8) \quad | \quad -5 + 8$$

$$-2(x^2 - 4x + 4) - 5 + 8$$

$$-2(x - 2)(x - 2) - 5 + 8$$

$$-2(x - 2)^2 + 3$$

1) $y = -2x^2 + 8x - 5$

2) $y = -x^2 + 6x - 10$

3) $y = x^2 + 4x + 1$

4) $y = 3x^2 + 6x + 2$

Using Complete the Square to Solve