



Questions?
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Ask Question ▶

Find the vertex of $x^2 + 4x - 32$

Question

$$y = x^2 + 4x - 32$$

$$y = x^2 + 2(2)(x) + 2^2 - 2^2 - 32$$

$$y = (x + 2)^2 - 4 - 32$$

$$y = [x - (-2)]^2 - 36$$

$$y = a(x - h)^2 + k$$

$$\text{Vertex} = (h, k) = (-2, -36)$$

Answer

11. Quadratic equations

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Ask Question 

Find the vertex of $x^2 - 3x - 18$

Question

Answer

$$y = x^2 - 3x - 18$$

$$y = x^2 - 2\left(\frac{3}{2}\right)x + \left(\frac{3}{2}\right)^2 - \left(\frac{3}{2}\right)^2 - 18$$

$$y = x^2 - 3x + \frac{9}{4} - \frac{9}{4} - 18$$

$$y = \left(x - \frac{3}{2}\right)^2 - \frac{81}{4}$$

$$y = a(x - h)^2 + k$$

$$\text{Vertex} = (h, k) = \left(\frac{3}{2}, -\frac{81}{4}\right)$$

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Find the vertex of $x^2 + 10x + 21$

Question

$$y = x^2 + 10x + 21$$

$$y = x^2 + 2(5)x + 5^2 - 5^2 + 21$$

$$y = (x + 5)^2 - 25 + 21$$

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

$$y = a(x - h)^2 + k$$

$$\text{vertex} = (h, k) = (-5, -4)$$

Answer

11. Quadratic equations

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Find the vertex of $x^2 - 36$

Question

Answer

$$y = x^2 - 36$$

$$y = x^2 + 2(0) \cdot x + 0^2 - 0^2 - 36$$

$$y = (x + 0)^2 - 0 - 36$$

$$y = (x + 0)^2 - 36$$

$$y = a(x - h)^2 + k$$

$$\text{vertex} = (h, k) = (0, -36)$$

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Find the vertex of $x^2 - 3x - 10$

Question

Answer

$$y = x^2 - 3x - 10$$

$$y = x^2 - 2\left(\frac{3}{2}\right)x + \left(\frac{3}{2}\right)^2 - \left(\frac{3}{2}\right)^2 - 10$$

$$y = x^2 - 3x + \frac{9}{4} - \frac{9}{4} - 10$$

$$y = \left(x - \frac{3}{2}\right)^2 - \frac{49}{4}$$

$$y = a(x - h)^2 + k$$

$$\text{Vertex} = (h, k) = \left(\frac{3}{2}, -\frac{49}{4}\right)$$

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Find the vertex of $x^2 + 8x + 12$

Question

Answer

$$y = x^2 + 8x + 12$$

$$y = x^2 + 2(4)x + 4^2 - 4^2 + 12$$

$$y = (x + 4)^2 - 16 + 12$$

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

$$y = [x - (-4)]^2 - 4$$

$$y = a(x - h)^2 - k$$

$$\text{vertex} = (h, k) = (-4, -4)$$

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