

Maths with Melissa

Negative Completing the Square Worksheet

1. Solve for x : $x^2 - 6x + 5 = 0$
2. Solve for x : $x^2 + 8x + 7 = 0$
3. Solve for x : $-x^2 + 4x - 3 = 0$
4. Solve for x : $-2x^2 + 12x - 14 = 0$
5. Solve for x : $x^2 - 10x + 16 = 0$
6. Solve for x : $-x^2 - 2x + 8 = 0$
7. Solve for x : $2x^2 - 4x - 6 = 0$
8. Solve for x : $-3x^2 + 18x - 27 = 0$

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Answer Key

1. $x^2 - 6x + 5 = 0$

$$x^2 - 6x = -5$$

$$x^2 - 6x + 9 = 4$$

$$(x - 3)^2 = 4$$

$$x - 3 = \pm 2$$

$x = 5$ or $x = 1$

2. $x^2 + 8x + 7 = 0$

$$x^2 + 8x = -7$$

$$x^2 + 8x + 16 = 9$$

$$(x + 4)^2 = 9$$

$$x + 4 = \pm 3$$

$x = -1$ or $x = -7$

3. $-x^2 + 4x - 3 = 0$

Multiply both sides by -1:

$$x^2 - 4x + 3 = 0$$

$$x^2 - 4x = -3$$

$$x^2 - 4x + 4 = 1$$

$$(x - 2)^2 = 1$$

$$x - 2 = \pm 1$$

$x = 3$ or $x = 1$

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4. $-2x^2 + 12x - 14 = 0$

Divide both sides by -2:

$$x^2 - 6x + 7 = 0$$

$$x^2 - 6x = -7$$

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

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

$$x - 3 = \pm\sqrt{2}$$

$$x = 3 + \sqrt{2} \text{ or } x = 3 - \sqrt{2}$$

5. $x^2 - 10x + 16 = 0$

$$x^2 - 10x = -16$$

$$x^2 - 10x + 25 = 9$$

$$(x - 5)^2 = 9$$

$$x - 5 = \pm 3$$

$$x = 8 \text{ or } x = 2$$

6. $-x^2 - 2x + 8 = 0$

Multiply both sides by -1:

$$x^2 + 2x - 8 = 0$$

$$x^2 + 2x = 8$$

$$x^2 + 2x + 1 = 9$$

$$(x + 1)^2 = 9$$

$$x + 1 = \pm 3$$

$$x = 2 \text{ or } x = -4$$

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7. $2x^2 - 4x - 6 = 0$

Divide both sides by 2:

$$x^2 - 2x - 3 = 0$$

$$x^2 - 2x = 3$$

$$x^2 - 2x + 1 = 4$$

$$(x - 1)^2 = 4$$

$$x - 1 = \pm 2$$

$x = 3$ or $x = -1$

8. $-3x^2 + 18x - 27 = 0$

Divide both sides by -3:

$$x^2 - 6x + 9 = 0$$

$$x^2 - 6x = -9$$

$$x^2 - 6x + 9 = 0$$

$$(x - 3)^2 = 0$$

$x = 3$