Quadratic Formula Examples

$x^2 + 8x = 20$

1. $x^2 + 8x - 20 = 0$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-8 \pm \sqrt{(-8)^2 - 4(1) - 20}}{2(1)}$$

$$x = \frac{-8 \pm \sqrt{(-8)^2 - 4(1) - 20}}{2(1)}$$

$$x = \frac{-8 \pm \sqrt{64 + 80}}{2}$$

$$x = \frac{-8 \pm \sqrt{144}}{2}$$

$$x = \frac{-8 \pm 12}{2}$$

$$x = \frac{4}{2} \text{ or } \frac{-20}{2}$$

$x = 2$ or -10

$x^2 - 12x = -9$

2. $x^2 - 12x + 9 = 0$

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$$x = \frac{12 \pm \sqrt{144 - 36}}{2}$$

$$x = \frac{12 \pm \sqrt{108}}{2}$$

$$x = \frac{12 \pm 6\sqrt{3}}{2}$$

$$x = 6 \pm 3\sqrt{3}$$

$x^2 + 9x = -7$

3. $x^2 + 9x + 7 = 0$

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$$x = \frac{9 \pm \sqrt{81 - 28}}{2}$$

$$x = \frac{9 \pm \sqrt{53}}{2}$$

$$x = \frac{12 \pm 6\sqrt{3}}{2}$$

$$x = 6 \pm 3\sqrt{3}$$