

solving quadratic equations by factoring

example: solve $x^2 - 5x = 24$

$$x^2 - 5x - 24 = 0$$

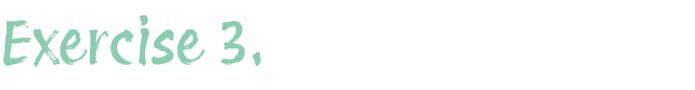
$$x^2 - 5x - 24 = (x - 8)(x + 3) = 0$$

$$x - 8 = 0$$
 and $x + 3 = 0$

$$\implies x = 8$$
 and $\implies x = -3$

$$8^{2} - 5(8) = 64 - 40 = 24 \implies true$$

 $(-3)^{2} - 5(-3) = 9 - (-15) = 24 \implies true$



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step by step for solving a quadratic equation by factoring

- 1. write the equation in standard form.
- 2. factor the quadratic completely
- 3. set each factor containing a variable equal to 0
- 4. solve the resulting equations
- 5. check each solution in the original equation

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modular arithmetic