

# Quadratic Equations

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## Strategies:

1. Factoring
2. Square Root Principle
3. Completing the square
4. Quadratic Formula:  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

**\*Note:**    2 real roots when  $b^2 - 4ac > 0$   
              1 real root when  $b^2 - 4ac = 0$   
              no real roots when  $b^2 - 4ac < 0$

1. Factor:      $3x^2 - 12x + 9$

2. Factor:      $18x^2 - 50y^2$

3. Factor:      $\frac{1}{4}x^2 + \frac{1}{2}x - 6$

4. Factor:  $2(x + 2)^2 + 3(x + 2) - 20$

5. Solve:  $(x - 3)(3x - 2) = 0$

6. Solve by Factoring:  $5x^2 - 10x - 75 = 0$

7. Solve using the Square Root Principle:  $3x^2 + 2 = 20$

8. Solve by Completing the Square:  $x^2 + 6x - 5 = 0$

9. Solve using the Quadratic Formula:  $x^2 - 2x - 5 = 0$

10. How many roots?  $3x^2 - 2x + 5 = 0$