



Worksheet: Completing the Square

****Instructions:**** Solve each quadratic equation by completing the square. Show all your work, and write the solutions in both simplified radical form and as decimal approximations.

****1.**** Solve the equation: $(x^2 - 6x + 9 = 0)$

****2.**** Solve the equation: $(2x^2 + 12x + 18 = 0)$

****3.**** Solve the equation: $(3x^2 - 10x + 7 = 0)$

****4.**** Solve the equation: $(x^2 + 4x - 5 = 0)$

****5.**** Solve the equation: $(4x^2 - 20x + 25 = 0)$

****6.**** Solve the equation: $(2x^2 - 8x - 6 = 0)$

****7.**** Solve the equation: $(x^2 + 10x + 25 = 0)$

****8.**** Solve the equation: $(3x^2 - 21x + 36 = 0)$

****9.**** Solve the equation: $(5x^2 + 2x - 3 = 0)$

****10.**** Solve the equation: $(6x^2 - 9x - 15 = 0)$

****Remember:**** When completing the square, follow these steps:

1. Move the constant term to the other side of the equation.
2. Make sure the coefficient of (x^2) is 1 (divide the equation by the coefficient if necessary).



3. Add and subtract $\left(\frac{\text{coefficient of } x^2}{2}\right)^2$ inside the square of the binomial on the left side of the equation.
4. Factor the perfect square trinomial.
5. Solve for x by taking the square root of both sides and simplifying.

****Answers:****

1. $x = 3$
2. $x = -3$
3. $x = \frac{5}{3}$ or $x = 1$
4. $x = 1$ or $x = -5$
5. $x = 2.5$
6. $x = 2$ or $x = -1$
7. $x = -5$
8. $x = 3$ or $x = 4$
9. $x = \frac{-1 \pm \sqrt{29}}{5}$
10. $x = -1$ or $x = \frac{5}{2}$

Remember to check your solutions by substituting them back into the original equations!