Solving Review

Solve by Factoring

Ex: $x^2 + 3x - 54 = 0$	Steps:	Practice: $3x^2 - 5x = 12$
$-54x^2$; $-6x$, $9x$, $3x$; 1 54, 2 27, -6 9 $(x^2 - 6x) + (9x - 54) = 0$ $x(x-6) + 9(x-6) = 0$ $(x-6)(x+9) = 0$ $x - 6 = 0$ $\quad$ $x + 9 = 0$ $x = 6$ $\quad$ $-9 \quad -9$ $x = -9$	1) Check standard form $ax^2 + bx + c = 0$ 2) Look for GCF 3) X-method 4) Zero product prop: Set all factors = to zero	

Solve by Completing the Square

Ex: $x^2 + 10x - 2 = 0$	Steps:	Practice: $c^2 - 6c = 7$
$+2 \quad +2$ $x^2 + 10x = 2$ $\left(\frac{10}{2}\right)^2 = 5^2 = 25$ $x^2 + 10x + 25 = 2 + 25$ $x^2 + 10x + 25 = 27$ $\sqrt{(x+5)^2} = \sqrt{27}$ $\quad$ 3, 9, 3, 3 $x + 5 = \pm 3\sqrt{3}$ $x + 5 = 3\sqrt{3}$ $\quad$ $x + 5 = -3\sqrt{3}$ $-5 \quad -5$ $\quad$ $-5 \quad -5$ $\boxed{x = -5 + 3\sqrt{3} \qquad x = -5 - 3\sqrt{3}}$ ~~$x = 3\sqrt{3} - 5$~~	1) $a = 1$, if it doesn't, ~~divide~~ divide every term by a 2) move c 3) find new c, add to both sides 4) Factor left side 5) $\sqrt{\ }$ Both sides simplify radical 6) Solve for x in 2 problems	

Solve by Quadratic Formula

Ex: $5x^2 + 23x - 10 = 0$	Steps:	Practice: $2x^2 + 98 = 28x$
$A = 5 \quad B = 23 \quad C = -10$ $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ $x = \frac{-(23) \pm \sqrt{(23)^2 - 4(5)(-10)}}{2(5)}$ $x = \frac{-23 \pm \sqrt{529 + 200}}{10}$ $x = \frac{-23 \pm \sqrt{729}}{10}$ $x = \frac{-23 \pm 27}{10}$	1) Standard Form 2) Find A, B, C 3) $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ 4) Split into 2 probs & solve for x * Simplify radicals	

$x = \frac{-23 + 27}{10}$ $\qquad$ $x = \frac{-23 - 27}{10}$

$x = \frac{4}{10} = \frac{2}{5}$ $\qquad$ $x = \frac{-50}{10} = -5$

$$\boxed{x = \frac{2}{5} \quad x = -5}$$