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Solving Quadratics - Quadratic Formula

Unlike factoring quadratic equations, using the quadratic formula, can solve all types of quadratic equations.

Steps:

- ① Make sure the quadratic is in standard form. $ax^2 + bx + c = 0$
- ② Label a , b & c .
- ③ Substitute all values into the quadratic formula. $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
- ④ Plug into the calculator twice (+ and -), and write solutions.

ex) $2x^2 + 7x - 11 = 0$

a) 2

b) 7 $x = \frac{-7 \pm \sqrt{7^2 - 4(2)(-11)}}{2(2)}$

c) -11

$$x = \frac{\pm \sqrt{137} - 7}{4} \quad \boxed{\text{CR}}$$

$$x = 1.18, -4.68$$

ex) $x^2 + 2x - 63 = 0$

a) 1

b) 2 $x = \frac{-(2) \pm \sqrt{(2)^2 - 4(1)(-63)}}{2(1)}$

c) -63

$$x = 7, -9$$

$$\text{ex) } x^2 - 84 = -8x$$

$$+8x$$

$$+8x$$

$$x^2 + 8x - 84 = 0$$

a) 1

b) 8

c) -84

$$x = \frac{-(8) \pm \sqrt{(8)^2 - 4(1)(-84)}}{2(1)}$$

$$2(1)$$

$$x = 6, -14$$

$$\text{ex) } 4b^2 + 6b - 54 = -8$$

$$+5 \quad +5$$

$$4b^2 + 6b - 54 = 0$$

a) 4

b) 6

c) -54

$$x = \frac{-(6) \pm \sqrt{(6)^2 - 4(4)(-54)}}{2(4)}$$

$$2(4)$$

$$x = 3, -4.5$$

$$x = 3, -\frac{9}{2}$$

OR