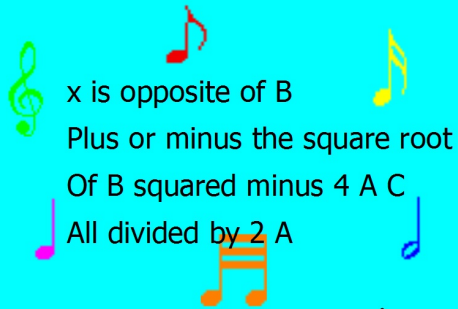


Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$



Page 1

Solve

$$-3x^2 + 5x - 2 = 0$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-5 \pm \sqrt{5^2 - 4(-3)(-2)}}{2(-3)}$$

$$x = \frac{-5 \pm \sqrt{25 - 24}}{-6} \quad x = \frac{-5 \pm \sqrt{1}}{-6}$$

$$x = \frac{-5+1}{-6} = \frac{-4}{-6} = \frac{2}{3} \quad \left. \right\} \quad x = \frac{-5-1}{-6} = \frac{-6}{-6} = 1$$

$(\frac{2}{3}, 0)$ $(1, 0)$

Page 3

Solve

$$x^2 + 6 = 5x$$

$$x^2 - 5x + 6 = 0$$

$$a = 1, b = -5, c = 6$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{5 \pm \sqrt{5^2 - 4(1)(6)}}{2(1)}$$

$$x = \frac{5 \pm \sqrt{25 - 4(1)(6)}}{2(1)}$$

$$x = \frac{5 \pm \sqrt{25 - 24}}{2}$$

$$x = \frac{5 \pm \sqrt{1}}{2}$$

$$x = \frac{5+1}{2} \quad x = \frac{5-1}{2}$$

$$x = \frac{6}{2} \quad x = \frac{4}{2}$$

$$x = 3 \quad x = 2$$

Page 2

$$7x^2 - 2x - 8 = 0$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{2 \pm \sqrt{2^2 - 4(7)(-8)}}{2(7)}$$

$$x = \frac{2 \pm \sqrt{4 + 224}}{14} = \frac{2 \pm \sqrt{228}}{14}$$

$$x = \frac{2+15.09}{14} = \frac{17.09}{14} = 1.22 \quad \left. \right\} \quad x = \frac{2-15.09}{14} = \frac{-13.09}{14} = -0.93$$

$(1.22, 0)$ $(-0.93, 0)$

Page 4

Suppose a football player kicks a ball and gives it an initial upward velocity of 47ft/sec. The starting height of the football is 3 feet. If no one catches the football, how long will it be in the air? (Hint: Start with the vertical motion formula.)

$$h = -16t^2 + vt + c$$

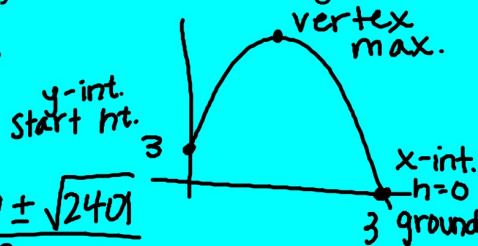
where v = initial velocity and c = initial height.

$$h = -16t^2 + 47t + 3$$

$$x = \frac{-47 \pm \sqrt{47^2 - 4(-16)(3)}}{2(-16)}$$

$$X = \frac{-47 \pm \sqrt{2209 + 192}}{-32} \quad X = \frac{-47 \pm \sqrt{2401}}{-32}$$

$$X = \frac{-47 + 49}{-32} = \frac{2}{-32} = \frac{1}{16} \quad \left. \vphantom{X} \right\} X = \frac{-47 - 49}{-32} = \frac{-96}{-32} = 3 \text{ sec}$$



Which method would you use to solve each equation?

a) $2x^2 - 6 = 0$ square roots

b) $6x^2 + 13x - 17 = 0$ quad. formula

c) $x^2 + 2x - 15 = 0$ factor

d) $16x^2 - 96x + 45 = 0$ quad. formula

e) $x^2 - 6x + 4 = 0$ complete \square

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