

SOLVING QUADRATIC EQUATIONS

Note Title

2/8/2012

- QUADRATIC EQUATIONS ARE EQUATIONS IN WHICH THE VARIABLE IS SQUARED.

- For Simple Equations (Binomials)
ISOLATE THE VARIABLE AND TAKE THE SQUARE ROOT.

It Solves $\frac{16x^2}{16} = \frac{9}{16}$

~~$\sqrt{16x^2} = \sqrt{\frac{9}{16}}$~~

$$x = \pm \frac{3}{4} \quad \left(x = \frac{3}{4}, x = -\frac{3}{4} \right)$$

- WE KNOW IF THE PRODUCT OF TWO TERMS IS 0 THEN ONE OR BOTH MUST BE EQUAL TO 0

- THE SAME HOLDS TRUE FOR FACTORING TRINOMIALS

IF $(x+y)(z+w) = 0$ THEN $x+y = 0$ OR

$z+w = 0$ OR BOTH EQUAL 0

IF SOLVE $x^2 - 2x - 15 = 0$

STEPS ① MAKE SURE THE QUADRATIC IS $= 0$

② FACTOR OUT ANYTHING YOU CAN

(3) FACTOR INTO 2 BINOMIALS
("CLIFFY" ON OTHER)

(4) MAKE EACH PART EQUAL TO 0

AND SOLVE

$$x^2 - 2x - 15 = 0$$

$$(x + 3)(x - 5) = 0$$

$$x + 3 = 0 \quad x - 5 = 0$$

$$x = -3$$

$$x = 5$$

$$x = -3$$

$$x = 5$$

THE

$$16x^2 = 9$$

$$-9 \quad -9$$

$$16x^2 - 9 = 0$$

$$(4x + 3)(4x - 3) = 0$$

$$\cancel{4x+3} = 0 \quad 4x - 3 = 0$$
$$-3 \quad +3 \quad +3$$

$$\frac{4x}{4} = -\frac{3}{4} \quad \frac{4x}{4} = \frac{3}{4}$$

$$x = -\frac{3}{4} \quad x = \frac{3}{4}$$

DE

Solve $x^2 + 12 = -7x$

$$+7x \quad +7x$$

$$x^2 + 7x + 12 = 0$$

$$(x + 3)(x + 4) = 0$$

$$x + 3 = 0 \quad x + 4 = 0$$

$$x = -3 \quad x = -4$$

DE Solve $(x-2)(x+5) = 18$

$$x^2 + 5x - 2x - 10 = 18$$

$$x^2 + 3x - 10 = 18$$

$$-14 \quad -14$$

$$x^2 + 3x - 28 = 0$$

$$(x + 7)(x - 4) = 0$$

$$x + 7 = 0 \quad x - 4 = 0$$

$$x = -7 \quad x = 4$$

IE THE HEIGHT OF A ROCKET OVER TIME IS
GIVEN BY THE FORMULA $H(t) = 2t^2 - 2t$.
CALCULATE THE TIME IT TAKES TO REACH 12 METERS.

SOLN $H(t) = 2t^2 - 2t$

$$12 = 2t^2 - 2t$$

$$0 = 2t^2 - 2t - 12$$

$$0 = 2(t^2 - t - 6)$$

$$0 = 2(t - 3)(t + 2)$$

$$t - 3 = 0 \quad t + 2 = 0$$

$t = 3$
2

~~$t = 2$~~
NEJECT

H/w Pg 260 # 1-3 A, C, E...
4, 9 ALL