

## Algebra III

## Solving Equations By Factoring

Warm up:

Factor:

$$x^2 - 3x - 18$$

$$(x - 6)(x + 3)$$

1	18
2	9
3	6

$$2x^3 - 11x^2 + 12x$$

$$x(2x^2 - 11x + 12)$$

$$x(2x - 3)(x - 4)$$

not  
even

1	12
2	6
3	4

Solve the following equations:

$$x^2 - 3x - 18 = 0$$

$$(x - 6)(x + 3) = 0$$

$$x - 6 = 0 \text{ or } x + 3 = 0$$

$$x = 6 \qquad x = -3$$

$$\{-3, 6\}$$

$$2x^3 - 11x^2 + 12x = 0$$

$$x(2x^2 - 11x + 12) = 0$$

$$(x - 0), 2x - 3 = 0 \quad x - 4 = 0$$

$$2x = 3$$

$$x = 3/2$$

$$(x - 4)$$

$$\{0, 3/2, 4\}$$

Solve the following equations:

$$x^2 = 6x - 8$$

$$x^2 - 6x + 8 = 0$$

$$(x-4)(x-2) = 0$$

$$x-4=0 \quad x-2=0$$

$$x=4$$

$$x=2$$

$$\{2, 4\}$$

$$3x^2 = 48$$

$$3x^2 - 48 = 0$$

$$3(x^2 - 16) = 0$$

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

3 ≠ 0

$$x+4=0$$

$$x=-4$$

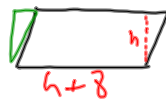
$$x-4=0$$

$$x=4$$

$$\{-4, 4\}$$

The longer sides of a parallelogram are each 8 m longer than the height. The area of the piece is 48 m<sup>2</sup>. Find the length of the longer sides and the height.

height =  $h$   
Base = 8 m more than  $h$



$$A = \text{Base} \cdot \text{height}$$

$$48 = (8+h) \cdot h$$

$$8h + h^2 - 48 = 0$$

$$h^2 + 8h - 48 = 0$$

$$(h-4)(h+12) = 0$$

$$h-4=0$$

$$h=4$$

$$h+12=0$$

$$h=-12$$

1	48
2	24
3	16
4	12
6	8

$$h = \{\cancel{-12}, 4\}$$

HW: p 312 #3-15 odd, 19-25 odd,  
37-39