Notes 1.5 Solving Equations

Notes:

*Leading coefficient must be one

*Isolate the x terms, cancel to get constant to other side

*Divide middle coefficient by 2, then square it.

Completing the Square

$$1x^{2} - 8x + 13 = 0$$

$$x^{2} - 8x + 16 = -13 + 16$$

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

$$x - 4 = \pm \sqrt{3}$$

$$x = 4 \pm \sqrt{3}$$

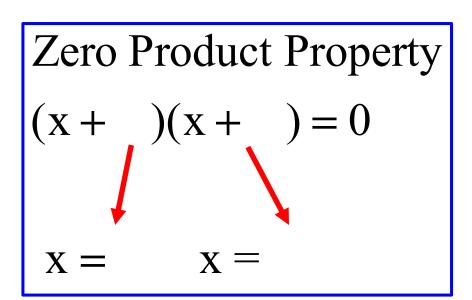
$$\frac{-8}{2} = -4$$

$$(-4)^{2} = 16$$

Notes 1.5 Solving Equations

Quadratic Formula

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



Today's assignment:

3.
$$x^2 - 4x - 5 = 0$$
 \rightarrow solve 3 different ways

a. factor

$$(x + 1)(x - 5) = 0$$

 $\sqrt{x + 1} = 0$ $x - 5 = 0$
 $\sqrt{x = -1}$ $\sqrt{x - 5}$

c. quadratic formula See next slide

complete the square

$$3. (1)x^{2} - 4)x - 5 = 0$$
a. I factor

$-4x(-5) = 0 \rightarrow \text{solve 3 different ways}$

b. complete the square

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

$$2(1)$$

$$1 = 4 \pm \sqrt{16 + 20} = 4 \pm \sqrt{36} = 4 \pm 6$$

$$2 = -1$$

c. quadratic formula

19.
$$\sqrt{\frac{x}{3}} - 2 = \sqrt{\frac{5}{3}}x + 7$$

$$-16 = 5x + 21$$
 $-16 = 5x + 21$

1.5 check evens answers:

24.
$$x = \frac{1}{17}$$

72.
$$3 \pm 2\sqrt{2}$$

26.
$$x = \frac{13}{6}$$