

ZPP

- If the product of two factors is 0, then at least one factor must be zero.

$$\text{Ex: } (3x - 6)(5x + 15) = 0$$

$$\begin{array}{r} 3x - 6 = 0 \\ +6 \quad +6 \\ \hline \end{array}$$

$$\begin{array}{r} 3x = 6 \\ \hline 3 \quad 3 \end{array}$$

$$\boxed{x = 2}$$

$$\begin{array}{r} 5x + 15 = 0 \\ -15 \quad -15 \\ \hline \end{array}$$

$$\begin{array}{r} 5x = -15 \\ \hline 5 \quad 5 \end{array}$$

$$\boxed{x = -3}$$

The roots are 2 and -3
zeros
solutions

$$\text{Ex: } x^2 = \cancel{7x}$$

$-7x \quad +7x$

set equal to 0

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

Factor

$$\underline{x(x-7) = 0}$$

ZPP

$$\boxed{x=0}$$

$$\cancel{x-7} = 0$$

$+7 \quad +7$

$$\boxed{x=7}$$

$$\text{Ex: } 6x^2 + 50x = \cancel{-4x}$$

$+4x \quad +4x$

$$6x^2 + 54x = 0$$

$$\underbrace{6x(x+9)} = 0$$

$$6x = 0$$

$$x + 9 = 0$$

$$\boxed{x = 0}$$

$$\boxed{x = -9}$$

$$(x^3 + 2x^2) + (3x + 6) = 0$$

$$x^2(\underline{x+2}) + 3(\underline{x+2}) = 0$$

$$\underbrace{(x+2)(x^2+3)} = 0$$

$$x + 2 = 0$$

$-2 \quad -2$

$$x = -2$$

$$x^2 + 3 = 0$$

No solution

$$x^2 - 25 = 0$$

$$\sqrt{x^2} = \sqrt{25}$$

$$x = \pm 5$$

$$(x + 3)(x^2 - 4) = 0$$

$$x + 3 = 0$$

$-3 \quad +3$

$$x = -3$$

$$x^2 - 4 = 0$$

$+4 \quad +4$

$$\sqrt{x^2} = \sqrt{4}$$

$$x = \pm 2$$

$$x = 2$$

$$x = -2$$

HW

(2a)

$$14x^2 = -21x$$

$+21x$ $+21x$

$$14x^2 + 21x = 0$$

$$7x(2x + 3) = 0$$

$$7x = 0$$

$$x = 0$$

$$2x + 3 = 0$$

-3 -3

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

$$x = -\frac{3}{2} = -1.5$$

$$h = 60t - 16t^2$$

$$0 = 60t - 16t^2$$

$$0 = 4t(15 - 4t)$$

$$0 = 4t$$

$$0 = 15 - 4t$$

$$t = 0$$

$$t = \frac{15}{4} = 3.75s$$

t

3.75 sec

