

I. Rewrite the following equations in standard form. Then name the polynomial (by degree & # of terms)

1.  $4x + 3x^2 - 16x^4$       2.  $-\frac{1}{3}x^0$       3.  $15 - 10x^2$

$$-16x^4 + 3x^2 + 4x$$

4<sup>th</sup> degree  
trinomial

$$-\frac{1}{3}x^0$$

constant  
monomial

$$-10x^2 + 15$$

quadratic  
binomial

II. Add or subtract the polynomials & rewrite in standard form.

4.  $(x^3 - x + 6x^5) + (x^4 + x^3 + x)$       5.  $(2x - 5x^5) - (-x^2 + x)$

$$x^3 - x + 6x^5 + x^4 + x^3 + x$$

$$2x - 5x^5 + x^2 - x$$

$$6x^5 + x^4 + 2x^3$$

$$-5x^5 + x^2 + x$$

III. Multiply the polynomials. Rewrite in standard form.

6.  $(x^2 - 4)(x^3 + 2)$       7.  $(x + 4)(x^2 - x + 2)$       8.  $(2x^2 - 3x + 1)(x^2 + 4x - 2)$

$$x^5 + 2x^2 - 4x^3 - 8$$

$$x^3 - x^2 + 2x + 4x^2 - 4x + 8$$

$$x^5 - 4x^3 + 2x^2 - 8$$

$$x^3 + 3x^2 - 2x + 8$$

	$2x^2$	$-3x$	$1$
$x^2$	$2x^4$	$-3x^3$	$x^2$
$4x$	$8x^3$	$-12x^2$	$4x$
$-2$	$-4x^2$	$6x$	$-2$

$$2x^4 + 5x^3 - 15x^2 + 10x - 2$$

IV. Factor out GCF!

9.  $x^3 + 2x + xy$

10.  $6x^4 + 9x^3 + 12x$

11.  $\frac{1}{4}x^7 + \frac{1}{2}x^5 + \frac{3}{4}x$

$$x(x^2 + 2 + y)$$

$$3x(2x^3 + 3x^2 + 4)$$

$$\frac{1}{4}x(x^6 + \frac{1}{4}x^4 + \frac{1}{2})$$

V. Solve using ZPPI!

12.  $3y^2 - 24y = 0$

$$3y(y - 8) = 0$$

$$\begin{array}{l} \frac{3y}{3} = 0 \\ y = 0 \end{array} \quad \begin{array}{l} \frac{y-8}{+8 \quad +8} = 0 \\ y = 8 \end{array}$$

$$\boxed{y = 0, 8}$$

13.  $15x + 45x^2 = 0$

$$15x(1 + 3x) = 0$$

$$\frac{15x}{15} = 0 \quad \frac{1+3x}{-1 \quad -1} = 0$$

$$x = 0$$

$$\frac{3x}{3} = -\frac{1}{3}$$

$$x = -\frac{1}{3}$$

$$\boxed{x = 0, -\frac{1}{3}}$$