

Section 1.4 pt 2

factor & solve

* must be = 0

* set each piece to 0

ex1 $6x^4 - 14x^2 = 0$

$$2x^2(3x^2 - 7) = 0$$

$$2x^2 = 0$$

$$x = 0$$

$$3x^2 = 7$$

$$x^2 = 7/3$$

$$x = \pm \sqrt{\frac{7}{3}} \left(\frac{\sqrt{3}}{\sqrt{3}} \right)$$

$$x = \pm \frac{\sqrt{21}}{3}$$

ex3 $x^4 - 3x^2 + 2 = 0$ $u = x^2$

$$u^2 - 3u + 2 = 0$$

$$(u-2)(u-1) = 0$$

$$(x^2-2)(x^2-1) = 0$$

$$x^2 = 2$$

$$x = \pm \sqrt{2}$$

$$x^2 = 1$$

$$x = \pm \sqrt{1}$$

$$x = \pm 1$$

ex2 $x^3 - 3x^2 - x + 3 = 0$

$$x^2(x-3) - 1(x-3) = 0$$

$$(x^2-1)(x-3) = 0$$

$$x^2-1 = 0$$

$$x^2 = 1$$

$$x = \pm 1$$

$$x-3 = 0$$

$$x = 3$$

ex4 ~~$x^4 + 5x^2 - 3 = 0$~~

$$2x^4 + 5x^2 - 3 = 0$$

$$u = x^2$$

$$2u^2 + 5u - 3 = 0$$

$$2u^2 + 6u - u - 3 = 0 \quad \left. \begin{array}{l} ac = -4 \\ b = 5 \end{array} \right\} u, 1$$

$$2u(u+3) - 1(u+3) = 0$$

$$(2u-1)(u+3) = 0$$

$$(2x^2-1)(x^2+3) = 0$$

$$x^2 = 1/2$$

$$x^2 = -3$$

$$x = \pm \frac{1}{\sqrt{2}}$$

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

$$x = \pm \frac{\sqrt{2}}{2}$$

