

You have 30 minutes to complete practice around room and ask questions.

SUM OR DIFFERENCE OF CUBES Factor the polynomial.

33. $x^3 - 8$

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

34. $x^3 + 64$

$(x+4)(x^2-4x+16)$

35. $216x^3 + 1$

$(6x+1)(36x^2-6x+1)$

36. $125x^3 - 8$

GROUPING Factor the polynomial by grouping.

41. $x^3 + x^2 + x + 1$

$(x^2+1)(x+1)$

42. $10x^3 + 20x^2 + x + 2$

$(10x^2+1)(x+2)$

43. $x^3 + 3x^2 + 10x + 30$

$(x^2+10)(x+3)$

QUADRATIC FORM Factor the polynomial.

50. $16x^4 - 1$

$(4x^2+1)(2x+1)(2x-1)$

51. $x^4 + 3x^2 + 2$

$(x^2+2)(x^2+1)$

Welcome to Class

-Cell phones in holder.

-Take out homework from Friday.

Review with neighbor.

Solving Higher Level Polynomials by Factoring

Steps:

1. Make sure the equation is equal to zero.
2. Factor the polynomial by the appropriate method.
3. Set each factor equal to zero.
4. Solve each equation using the appropriate method.

<p>Example 1: $5x^4 + 33x^2 + 40 = 0$</p> $(5x^2 + 8)(x^2 + 5) = 0$ $x^2 + 5 = 0$ $\sqrt{x^2} = \sqrt{-5}$ $x = \pm i\sqrt{5} \quad x = \pm 2i\sqrt{2}$	$5x^2 + 8 = 0$ $\frac{-8 \pm \sqrt{64 - 160}}{10}$ $\frac{-8 \pm \sqrt{-96}}{10}$ $\frac{-8 \pm 4i\sqrt{6}}{10}$ $x = \frac{-2 \pm i\sqrt{6}}{5}$
<p>Example 2: $5x^3 - x^2 - 15x + 3 = 0$</p> $x^2(5x-1) - 3(5x-1) = 0$ $(5x-1)(x^2-3) = 0$	$5x-1=0 \quad x^2-3=0$ $\frac{+1 \quad +1}{5x=1} \quad \frac{+3 \quad +3}{\sqrt{x^2}=\sqrt{3}}$ $x = \frac{1}{5} \quad x = \pm\sqrt{3}$
<p>Example 3: $x^3 - 1 = 0$</p> $(x-1)(x^2+1x+1) = 0$ $x-1=0$ $x = 1 \quad x = \frac{-1 \pm i\sqrt{3}}{2}$	$x^2+1x+1=0$ $x = \frac{-1 \pm \sqrt{(1)^2 - 4(1)(1)}}{2(1)}$ $x = \frac{-1 \pm \sqrt{3}}{2}$
<p>Example 4: $2x^3 + 3x^2 - 2x = 0$</p> $x(2x^2 + 3x - 2) = 0$ $x(2x-1)(x+2) = 0$	$x = 0$ $2x-1=0$ $2x=1$ $x = \frac{1}{2}$ $x = -2$

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