

## Review - Factor each polynomial completely.

1.  $121x^2 - 64 = (11x - 8)(11x + 8)$
2.  $3x^2 - 12 = 3(x^2 - 4) = 3(x - 2)(x + 2)$
3.  $x^2 + 25 = \cancel{(x+5)(x-5)}$  prime
4.  $x^4 - 9 = (x^2 - 3)(x^2 + 3)$
5.  $x^4 - 81 = (x^2 + 9)(x^2 - 9) = (x^2 + 9)(x - 3)(x + 3)$
6.  $x^2 + 12x + 35 = (x + 7)(x + 5)$
7.  $x^2 + 12x - 13 = (x - 1)(x + 13)$
8.  $x^2 - 8x + 12 = (x - 2)(x - 6)$
9.  $x^2 + 6x + 5 = (x + 5)(x + 1)$
10.  $2x^2 - 16x - 40 = 2(x^2 - 8x - 20) = 2(x - 10)(x + 2)$
11.  $x^3 - 8 = (x - 2)(x^2 + 2x + 4)$
12.  $y^3 + 216 = (y + 6)(y^2 - 6y + 36)$
13.  $x^3 - 125 = (x - 5)(x^2 + 5x + 25)$
14.  $27y^3 - 64x^3 = (3y - 4x)(9y^2 + 12xy + 16x^2)$
15.  $5a^3 + 5 = 5(a^3 + 1) = 5(a + 1)(a^2 - a + 1)$
16.  $24x^5y^7 - 27x^3y^{10} = 3x^3y^7(8x^2 - 9y^3)$

Rule 5 - Perfect Square Trinomials

$$\begin{cases} a^2 + 2ab + b^2 = (a + b)^2 \\ a^2 - 2ab + b^2 = (a - b)^2 \end{cases}$$

ex 17 - Factor completely:  $9x^2 + 30x + 25$

$$(3x + 5)(3x + 5) = (3x + 5)^2$$

ex 18 - Factor completely:  $36y^2 - 84y + 49$

$$(6y - 7)(6y - 7) = (6y - 7)^2$$

ex 19 - Factor completely:  $100a^2b^2 - 180ab + 81$

$$(10ab - 9)(10ab - 9) = (10ab - 9)^2$$

ex 20 - Factor completely:  $36c^2 + 132cd + 121d^2$

ex 21 - Turn this into a perfect square trinomial; then factor.  $4x^2 - 28x + 49 = (2x - 7)(2x - 7)$

ex 22 - Turn this into a perfect square trinomial; then factor.  $64a^2 + 80ab + 25b^2 = (8a + 5b)(8a + 5b)$

$$40ab$$