

# AA PREP—FACTORIZING VARIATIONS (BASICS) LECTURE

Factor completely.

GCF: GREATER COMMON FACTOR!

1) $144x^4 - 24x$ $24x(6x^3 - 1)$	2) $15x^3y^5 - 25xy^8$ $5xy^5(3x^2 - 5y^3)$
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Difference of Two Squares:  $x^2 - y^2 = (x-y)(x+y)$      $\downarrow$  THERE IS NO SUM OF TWO SQUARES.

3) $x^2 - 9$ $(x)^2 (3)^2$ $(x-3)(x+3)$	4) $x^2 - 1$ $(x)^2 (1)^2$ $(x-1)(x+1)$
5) $25x^2 - 4$ $(5x)^2 (2)^2$ $(5x-2)(5x+2)$	6) $x^4 - 16$ $(x^2)^2 (4)^2$ $(x^2 - 4)(x^2 + 4)$ $(x-2)(x+2)(x^2 + 4)$

Basic Quadratic Trinomials:  $\underline{a}x^2 + bx + c$      $\underline{a=1}$

7) $x^2 - 2x - 24$ $\begin{array}{ccc} & -24 & a \cdot c \\ -6 & \times & 4 \\ & -2 & b \end{array}$ $(x-6)(x+4)$	8) $-x^2 - x + 42$ $\downarrow$ DIVIDE GCF $-1(x^2 + x - 42)$ $\downarrow$ 1st! $\begin{array}{ccc} & -42 & a \cdot c \\ 7 & \times & -6 \\ & 1 & b \end{array}$ $-(x+7)(x-6)$
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Perfect Square Trinomials:  $x^2 + 2xy + y^2 = (x+y)(x+y) = (x+y)^2$   
 $x^2 - 2xy + y^2 = (x-y)(x-y) = (x-y)^2$

9) $x^2 + 6x + 9$ $(x)^2 (3)^2$ $(x+3)^2$	10) $x^2 - 8x + 16$ $(x)^2 (4)^2$ $(x-4)^2$
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