

⑤ Multi-Step / Higher Order

ex)  $x^4 - 26x^3 - 27$

Mult. -27	Add -26
-27, 1	-26 ✓

$(x^3 - 27)(x^3 + 1)$

Diff. of cubes

Sum of cubes

$(x^3 - 27)(x^3 + 1)$   
 $\downarrow \quad \downarrow \quad \downarrow \quad \downarrow$   
 $x \quad 3 \quad x \quad 1$

$(x-3)(x^2+3x+9)(x+1)(x^2-x+1)$

ex)  $125x^2 + 400xy + 320y^2$

Mult. to 1600	Add to 80
40, 40	✓

$5(25x^2 + 80xy + 64y^2)$

$5(25x^2 + 40xy + 40xy + 64y^2)$

$5((25x^2 + 40xy) + (40xy + 64y^2))$

$5(5x(5x + 8y) + 8y(5x + 8y))$

$5(5x + 8y)(5x + 8y)$

$5(5x + 8y)^2$