

# Factoring Practice

Name Mr. Ward

## Factor out the common monomial

1.  $6x^3 + 3x$

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

2.  $10x^4 + 3x^2 + 2x$

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

3.  $8x^2 + 4$

$4(2x^2 + 1)$

4.  $26x^3 + 13x$

$13x(2x^2 + 1)$

## Factor using reverse FOIL

5.  $x^2 + 5x + 6$  <sup>1,6</sup>/<sub>2,3</sub>

$(x+3)(x+2)$

6.  $x^2 + x - 12$  <sup>1,12</sup>/<sub>2,6</sub>/<sub>3,4</sub>

$(x+4)(x-3)$

7.  $x^2 - 4x - 5$  <sup>1,5</sup>

$(x-5)(x+1)$

8.  $3x^2 - 21x + 30$

$3(x^2 - 7x + 10)$  <sup>1,10</sup>/<sub>2,5</sub>

$3(x-2)(x-5)$

9.  $2x^2 + 18x + 40$

$2(x^2 + 9x + 20)$  <sup>1,20</sup>/<sub>2,10</sub>/<sub>5,4</sub>

$2(x+5)(x+4)$

10.  $x^2 - 8x + 15$  <sup>1,15</sup>/<sub>3,5</sub>

$(x-3)(x-5)$

## Factor using sum/difference of cubes

1.  $125 - x^3$

$(5)^3 - (x)^3$

$(5-x)(25 + 5x + x^2)$

12.  $-27x^3 + 64$

$(-3x)^3 + (4)^3$

$(-3x+4)(9x^2 - 12x + 16) \Rightarrow (-3x+4)(9x^2 + 12x + 16)$

3.  $16a^3 + 54$

$2(8a^3 + 27)$

$2((2a)^3 + (3)^3)$

$2(2a+3)(4a^2 - 6a + 9)$

14.  $x^3 - 1$

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

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

## Factor using grouping.

5.  $x^3 - 2x^2 - 9x + 18$

$x^2(x-2) - 9(x-2)$

$(x^2-9)(x-2)$

16.  $12x^3 - 9x^2 + 4x - 3$

$3x^2(4x-3) + 1(4x-3)$

$(3x^2+1)(4x-3)$

7.  $2x^3 + 5x^2 + 6x + 15$

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

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

18.  $35xy - 5x - 56y + 8$

$5x(7y-1) - 8(7y-1)$

$(5x-8)(7y-1)$