

# Factoring Review Worksheet

Name MR. K&U  
Date \_\_\_\_\_ Block \_\_\_\_\_

Factor each polynomial completely.

1.  $x^2 + 8x + 15$

$$(x+3)(x+5)$$

2.  $m^2 - 9m + 20$

$$(m-4)(m-5)$$

3.  $n^2 - 49$

$$(n+7)(n-7)$$

4.  $9a^2 - 56a + 12$   $\begin{array}{r} 108 \overline{) -56} \\ -54 \phantom{2} \\ \hline -2 \phantom{1} \\ -2 \phantom{1} \\ \hline 0 \end{array}$

$$9a^2 - 54a - 2a + 12$$
$$9a(a-6) - 2(a-6)$$

$$(9a-2)(a-6)$$

5.  $3x^2 + 11x - 4$

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

6.  $6x^2 + 5x - 6$   $\begin{array}{r} -36 \overline{) 5} \\ 9 \phantom{-4} \\ \hline -4 \phantom{1} \\ -4 \phantom{1} \\ \hline 0 \end{array}$

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

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

7.  $x^2 - 10x + 25$

$$(x-5)^2$$

8.  $4x^2 - 81$

$$(2x+9)(2x-9)$$

9.  $4x^2 - 2x - 20$

$$2(2x^2 - x - 10)$$

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

10.  $3x^3 - 27x$

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

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

11.  $16x^2 - 24x + 9$

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

12.  $a^2 - b^2$

$$(a+b)(a-b)$$

13.  $4u^2 - 4u - 35$

$$(2u+5)(2u-7)$$

14.  $3p^2 + 15p - 42$

$$3(p^2 + 5p - 14)$$

$$3(p+7)(p-2)$$

15.  $x^3 - 27$

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

16.  $2x^3 + 250$

$2(x^3 + 125)$

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

17.  $256x^5 - 81x^3$

$x^3(256x^2 - 81)$

$x^3(16x+9)(16x-9)$

18.  $x^4 - 7x^2 + 10$

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

19.  $x^3 + 5x^2 + 8x + 40$

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

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

20.  $3x^3 - 24$

$3(x^3 - 8)$

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

21.  $2x^4 + 16x^2 + 24$

$2(x^4 + 8x^2 + 12)$

$2(x^2+6)(x^2+2)$

22.  $2x^3 + 18x^2 - 5x - 45$

$2x^2(x+9) - 5(x+9)$

$(2x^2-5)(x+9)$

23.  $3x^5 + 6x^3 - 45x$

$3x(x^4 + 2x^2 - 15)$

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

24.  $2x^3 - 28x^2 + 98x$

$2x(x^2 - 14x + 49)$

$2x(x-7)^2$

25.  $64x^3 - 125$

$(4x-5)(16x^2+20x+25)$

26.  $8x^4 + 8x^3 + 64x + 64$

$8x^3(x+1) + 64(x+1)$

$(8x^3+64)(x+1)$

$8(x^3+8)(x+1)$

$8(x+2)(x^2-2x+4)(x+1)$

27.  $x^7 + x^6 + x^3 + x^2$

$x^2(x^5 + x^4 + x + 1)$

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

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

28.  $40x^3 + 5$

$5(8x^3 + 1)$

$5(2x+1)(4x^2-2x+1)$

29.  $3x^3 + 12x^2 - 3x - 12$

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

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

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

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

30.  $x^4 + 5x^3 + x + 5$

$x^3(x+5) + 1(x+5)$

$(x^3+1)(x+5)$

$(x+1)(x^2-x+1)(x+5)$