

Name Keyz

Date \_\_\_\_\_ Period \_\_\_\_\_

## Factoring By Grouping

Factor each completely.

1)  $(8r^3 - 64r^2)(r - 8)$

$8r^2(r - 8) + 1(r - 8)$

$(8r^2 + 1)(r - 8)$

3)  $(12x^3 + 2x^2)(-30x - 5)$

$2x^2(6x + 1) - 5(6x + 1)$

$(2x^2 - 5)(6x + 1)$

2)  $(12p^3 - 21p^2)(28p - 49)$

$3p^2(4p - 7) + 7(4p - 7)$

$(3p^2 + 7)(4p - 7)$

4)  $(6v^3 - 16v^2)(21v - 56)$

$2v^2(3v - 8) + 7(3v - 8)$

$(2v^2 + 7)(3v - 8)$

5.  $(25v^3 + 5v^2)(30v + 6)$

$5v^2(5v + 1) + 6(5v + 1)$

$(5v^2 + 6)(5v + 1)$

7.  $(4v^3 - 12v^2)(-5v + 15)$

$4v^2(v - 3) - 5(v - 3)$

$(4v^2 - 5)(v - 3)$

9.  $(24p^3 + 15p^2)(-56p - 35)$

$3p^2(8p + 5) - 7(8p + 5)$

$(3p^2 - 7)(8p + 5)$

6.  $28v^3 + 16v^2 - 21v - 12$

$4v^2(7v + 4) - 3(7v + 4)$

$(4v^2 - 3)(7v + 4)$

8.  $(49x^3 - 35x^2)(56x - 40)$

$7x^2(7x - 5) + 8(7x - 5)$

$(7x^2 + 8)(7x - 5)$

10.  $(24r^3 - 64r^2)(-21r + 56)$

$8r^2(3r - 8) - 7(3r - 8)$

$(8r^2 - 7)(3r - 8)$

$$11. (56xw + 49xk^2) - (24yw - 21yk^2)$$

$$7x(8w + 7k^2) - 3y(8w + 7k^2)$$

$$(7x - 3y)(8w + 7k^2)$$

$$13. (12x^2u + 3x^2v) + (28yu + 7yv)$$

$$3x^2(4u + v) + 7y(4u + v)$$

$$(3x^2 + 7y)(4u + v)$$

$$15. (12bc - 4bd) - (15xc + 5xd)$$

$$4b(3c - d) - 5x(3c - d)$$

$$17. (56xy - 35x) + (16ry - 10r)$$

$$7x(8y - 5) + 2r(8y - 5)$$

$$(7x + 2r)(8y - 5)$$

$$19. 5a^2z - 4a^2c + 15xz - 12xc$$

$$a^2(5z - 4c) + 3x(5z - 4c)$$

$$(a^2 + 3x)(5z - 4c)$$

$$21. 21xy - 12b^2 + 14xb - 18by$$

$$3(7xy - 4b^2 + 4xb - 6by)$$

$$3(7x - 6b) + 2b(-6b + 7x)$$

$$(3y + 2b)(7x - 6b)$$

$$23. 28xy + 25 + 35x + 20y$$

$$(28xy + 20y) + (35x + 25)$$

$$4y(7x + 5) + 5(7x + 5)$$

$$(4y + 5)(7x + 5)$$

$$12. 42mc + 36md - 7n^2c - 6n^2d$$

$$6m(7c + 6d) - n^2(7c + 6d)$$

$$(6m - n^2)(7c + 6d)$$

$$14. (40ac^2 + 25ak^2) + (32bc^2 + 20bk^2)$$

$$5a(8c^2 + 5k^2) + 4b(8c^2 + 5k^2)$$

$$(5a + 4b)(8c^2 + 5k^2)$$

$$16. 16mn - 4m^2 + 28n - 7m$$

$$4m(4n - m) + 7(4n - m)$$

$$(4m + 7)(4n - m)$$

$$18. (21xy + 15x) + (35ry + 25r)$$

$$3x(7y + 5) + 5r(7y + 5)$$

$$(3x + 5r)(7y + 5)$$

$$20. 4xy + 6 - x - 24y$$

$$(4xy - 24y) + (6 - x)$$

$$4y(x - 6) - 1(-6 + x)$$

$$4y(x - 6) - 1(x - 6)$$

$$(4y - 1)(x - 6)$$

$$22. 9mz - 4nc + 3mc - 12nz$$

$$(9mz - 12nz) + (-4nc + 3mc)$$

$$3z(3m - 4n) + c(-4n + 3m)$$

$$(3z + c)(3m - 4n)$$

$$24. 30uv + 30u + 36u^2 + 25v$$

$$30uv + 25v + 30u + 36u^2$$

$$5v(6u + 5) + 6u(5 + 6u)$$

$$(5v + 6u)(6u + 5)$$