

First & Last Name _____ Date _____ Period _____

6.4 Factoring Polynomials Practice

Directions: Factor each polynomial by grouping.

1. $x^3 - 7x^2 + x - 7$

$$(x-7)(x^2+1)$$

2. $4r^3 - 3r^2 - 4r + 3$

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

3. $3p^3 + 5p^2 - 12p - 20$

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

4. $15n^3 - 6n^2 - 25n + 10$

$$(5n-2)(3n^2-5)$$

Directions: Factor each polynomial completely. Make sure to check for a GCF first.

5. $x^4 - 36$

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

6. $64c^2 - 1$

$$(8c-1)(8c+1)$$

7. $x^2 - 12x + 36$

$$(x-6)^2$$

8. $3m^2 - 48$

$$3(m-4)(m+4)$$

$$9. x^4 - 14x^2 - 32$$

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

$$10. k^3 + 7k^2 - 44k$$

$$k(k + 11)(k - 4)$$

$$11. -x^3 + 4x^2 + 21x$$

$$-x(x + 3)(x - 7)$$

$$12. 9y^4 + 6y^3 + y^2$$

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

$$13. 8x^2 + 10x - 3$$

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

$$14. m^3 - 7m^2 - 18m$$

$$m(m + 2)(m - 9)$$