

Name: Answers Period: \_\_\_\_\_

### 5-5 Practice Part 1

Factor completely. If the polynomial is not factorable, write *prime*.

1.  $3x^3y^2 - 2x^2y + 5xy$

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

2.  $24d^5 + 6d^3$

$$6d^3(4d^2 + 1)$$

3.  $9x^2 - 16$

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

4.  $n^4 - 49n^2$

$$n^2(n+7)(n-7)$$

5.  $y^2 + 20y - 96$

$$(y+24)(y-4)$$

6.  $6n^2 - 11n - 2$

$$(6n+1)(n-2)$$

7.  $x^2 - 8x - 8$

not possible

8.  $t^4 - 21t^2 + 80$

$$(t+4)(t-4)(t^2-5)$$

9.  $6x^4 + 7x^2 - 3$

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

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

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

11.  $25p^3 - 25p^2 - p + 1$

$$(5p+1)(5p-1)(p-1)$$

12.  $2w^3 + 54$

$$2(w+3)(w^2+3w+9)$$

13.  $m^3 - 1$

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

### 5-5 Practice Part 2

Use Factoring to Solve the Polynomial Equations.

14.  $x^4 + 2x^2 = 24$

$$x = -2$$

$$x = 2$$

$$x = \pm\sqrt{6}$$

15.  $2x^3 - 16x^2 + 32x = 0$  \*hint: factor out GCF first

$$x = 0$$

$$x = 4$$

$$x = 4$$

10.  $x^4 - 81 = 0$

$$x = -3$$

$$x = 3$$

$$x = \pm 3i$$

11.  $2x^2 - 5x = 12$

$$x = -3/2$$

$$x = 4$$

13.  $4x^3 + 3x^2 - 16x - 12 = 0$

$$x = -2$$

$$x = 2$$

$$x = -3/4$$

14.  $27x^3 = -8$

$$x = \frac{-2}{3}$$

$$x = \frac{1 \pm i\sqrt{3}}{3}$$