

Accelerated 65 - 95 HW 21 (B 6.4) Factoring Special Forms

Name: \_\_\_\_\_

**Concept and Vocabulary Check:**

1. The formula for factoring the difference of two squares  $A^2 - B^2 =$   
\_\_\_\_\_.
2. A formula for factoring a perfect square trinomial is  $A^2 + 2AB + B^2 =$  \_\_\_\_\_.
3. A formula for factoring a perfect square trinomial is  $A^2 - 2AB + B^2 =$  \_\_\_\_\_.
4. The formula for factoring the sum of two cubes is  $A^3 + B^3 =$  \_\_\_\_\_.
5. The formula for factoring the difference of two cubes is  $A^3 - B^3 =$   
\_\_\_\_\_.

**Practice Exercises:**

In exercises 1 - 25, factor each difference of two squares.

1.  $x^2 - 25$

19.  $25x^2 - 16y^2$

3.  $y^2 - 1$

21.  $x^4 - y^{10}$

9.  $1 - 49x^2$

25.  $16x^4 - 81$

In exercises 29 - 41, factor completely or state that the polynomial is prime.

29.  $2x^3 - 72x$

37.  $3y^3 - 48y$

31.  $x^2 + 36$

41.  $-3x^2 + 75$

35.  $18 - 2y^2$

In exercises 45 - 65, factor any perfect square trinomials or state that the polynomial is prime.

45.  $x^2 + 2x + 1$

57.  $x^2 - 10x + 100$

49.  $x^2 - 2x + 1$

59.  $x^2 + 14xy + 49y^2$

53.  $4x^2 + 4x + 1$

63.  $x^2 - 8xy + 64y^2$

55.  $25y^2 - 10y + 1$

65.  $16x^2 - 40xy + 25y^2$

In exercises 67 - 77, factor completely.

67.  $12x^2 - 12x + 3$

75.  $-6x^2 + 24x - 24$

71.  $2y^2 - 4y + 2$

77.  $-16y^3 - 16y^2 - 4y$

In exercises 79 - 95, factor using the formula for the sum or difference of two cubes.

79.  $x^3 + 1$

87.  $x^3y^3 - 64$

81.  $x^3 - 27$

91.  $54 - 16y^3$

83.  $8y^3 - 1$

93.  $64x^3 + 27y^3$

85.  $27x^3 + 8$

95.  $125x^3 - 64y^3$

In exercises 97 - 103, factor completely.

97.  $25x^2 - \frac{4}{49}$

103.  $(x + 1)^2 - 25$

### Applications:

In exercise 109, **first copy the images from page 450 next to the correct problem.** Then find the formula for the area of the shaded region and express it in factored form.

109.

### Writing in Mathematics:

113. Explain why  $x^2 - 1$  is factorable but  $x^2 + 1$  is not.