

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

**Concept and Vocabulary Check:**

1. We begin the factoring a polynomial by first factoring out the \_\_\_\_\_, assuming that there is one other than 1.

**Practice Exercises:**

*In exercises 1 - 89 odd, factor each trinomial completely, using the ac method after **first pulling out the gcf**. If the trinomial is prime, so state. Check 11, 21, 35, 55, 71, and 83 by multiplication.*

5.  $2x^2 + 11x + 12$

17.  $3x^2 - 17x + 10$

11.  $3x^2 + 13x - 10$

21.  $8x^2 + 33x + 4$

**check:**

**check:**

$$23. 5x^2 + 33x - 14$$

$$37. 8x^2 - 2x - 1$$

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

$$45. 3x^2 + 5xy + 2y^2$$

$$31. 15y^2 - y - 2$$

$$47. 2x^2 - 9xy + 9y^2$$

$$35. 10y^2 + 43y - 9$$

$$55. 15a^2 - ab - 6b^2$$

**check:**

**check:**

$$59. 4x^2 + 26x + 30$$

$$77. 10x^5 - 17x^4 + 3x^3$$

$$61. 9x^2 - 6x - 24$$

$$79. 6x^2 - 3xy - 18y^2$$

$$65. 9y^2 + 33y - 60$$

$$81. 12x^2 + 10xy - 8y^2$$

$$71. 9y^3 - 39y^2 + 12y$$

$$83. 8x^2y + 34xy - 84y$$

**check:**

**check:**

87.  $-32x^2y^4 + 20xy^4 + 12y^4$

89.  $30(y + 1)x^2 + 10(y + 1)x - 20(y + 1)$

91. a. Factor  $2x^2 - 5x - 3$ .

b. Use the structure of the factorization from part (a) as a template to factor

$2(y + 1)^2 - 5(y + 1) - 3$ . Try not to make it complicated as it's not meant to be.

Then, simplify each factor.

## Applications:

95. **COPY** the figures from page 441 for this problem here.

- a. Write a trinomial that expresses the sum of the areas of the six rectangular pieces shown in figure (a).
- b. Express the area of the large rectangle in figure (b) as the product of two binomials.
- c. Are the pieces in figure (a) and (b) the same? Set the expressions that you wrote in parts (a) and (b) equal to each other. What factorization is illustrated?

## Writing in Mathematics:

97. Explain how to factor  $2x^2 - x - 1$
98. Why is it a good idea to factor out the GCF first and then use other methods of factoring? Use  $3x^2 - 18x + 15$  as an example. Discuss what happens if one first uses the grouping method to factor first rather than first factoring out the GCF.