Name_____ Per_____ Date_____

4.1.4 Factoring Completely

4-34.

Review what you have learned in the previous lessons by factoring the following expressions, if possible.

a. $9x^2 - 12x + 4$

b. $81m^2 - 1$

c. $28 + x^2 - 11x$

d. $3n^2 + 9n + 6$

4-35.

Compare your factored expressions for problem 4-34 with the rest of your class.

a. Is there more than one factored form of $3n^2 + 9n + 6$? Why or why not?

b. Why does $3n^2 + 9n + 6$ have more than one factored form while the other quadratics in problem 4-34 only have one possible factored form? Look for clues in the original expression and in the different factored forms.

c. *Without factoring*, predict which quadratic expressions below may have more than one factored form. Be prepared to defend your choice to the rest of the class.

i. $12t^2 - 10t + 2$

ii. $5p^2 - 23p + 10$

iii. $10x^2 + 25x - 15$

iv. $3k^2 + 7k - 6$

4-36.

FACTORING COMPLETELY

In part (c) of problem 4-35, you should have noticed that each term in $12t^2 - 10t + 2$ is divisible by 2. That is, each term in the expression has a **common factor** of 2.

a. An expression is considered **completely factored** if none of the factors can be factored further. Often it is easiest to remove common factors first, before factoring with an area model. Rewrite the expression $10x^2 + 25x - 15$ with the common factor factored out.

b. Your result in part (a) is not completely factored because the trinomial factor can still be written as a product of two factors. Factor $10x^2 + 25x - 15$ completely.

4-37.

Factor each of the following expressions completely.

a. $5x^2 + 15x - 20$

b. $3x^3 - 6x^2 - 45x$

c. $2x^2 - 50$

d. $x^2y - 3xy - 10y$