Section 6.2

READING AND SELF-DISCOVERY QUESTIONS 6.2

1. What process do you use for multiplying a polynomial by a monomial? (Be sure to address both coefficients and exponents in your answer!)

   You multiply each term of the polynomial by the monomial, including constants, coefficients, variables and exponents (nothing is left out).

2. What algebraic property are you using when you multiply any two polynomials?

   the distributive law

3. What is the final step in the process of multiplying a trinomial by a binomial?

   Combining like terms (simplifying the expression).

4. After you have multiplied any two polynomials together, what should you always do to make sure that your answer is simplified?

   Combine like terms.

CRITICAL THINKING QUESTIONS 6.2

1. Why doesn't the FOIL method work when multiplying a monomial by a binomial?

   A monomial does not have two terms.

2. What kind of polynomial do you get when you square a binomial? Is this always the case? Explain your answer.

   In every case, you will get a perfect square trinomial.

   [This is NOT the case for simply multiplying two binomials. Eg: $\underline{(x^2 + x)}$ $(x^3 + 2) = (x^5 + x^4 + 2x^2 + 2x)$. Notice that in the first binomial, which is underlined, there is no constant. In cases like these, you will NOT get a trinomial.]

DEMONSTRATE YOUR UNDERSTANDING 6.2

1. Create a problem where FOIL is the appropriate technique for simplifying an expression. Simplify the expression.

$(3a + 2b) \cdot (a - b)$

$3a^2 + 3ab + 2ab - 2b^2$

$3a^2 + 5ab - 2b^2$

This is a sample problem and solution; student answers will vary.

IDENTIFY AND CORRECT THE ERRORS 6.2

In the second column, identify the error(s) you find in the following worked solution and describe the error made. Solve the problem correctly in the third column.

Problem	Describe Error	Correct Process
Simplify: $(5x + 2)^2$	**The student split up the binomial and distributed the exponent instead of expanding the expression into $(5x + 2)(5x + 2)$ and using the FOIL method.**	$(5x + 2)^2$
Worked Solution *(What is wrong here?)*		$= (5x + 2)(5x + 2)$
$(5x + 2)^2 = (5x)^2 + (2)^2$		$= 5x(5x + 2) + 2(5x + 2)$
$= (25x^2) + (4)$		$= 25x^2 + 10x + 10x + 4$
$= \mathbf{25x^2 + 4}$		$= 25x^2 + 20x + 4$