2.08 Review of Factoring

Basic Algebra: One Step at a Time. Pages 181-184: # 37, 38, 39

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p. 182: 37. $3x^2 + 12x + 12$ Notice that there is a common factor to all three terms. The first step in ANY factoring problem is to take out the common factor. Remember FCFF: Factor the Common Factor First!! In this case, the common factor is 3.

$3x^2 + 12x + 12$

$3(\_\_\_ + \_\_\_ + \_\_\_)$

$3(x^2 + 4x + 4)$

Notice that this is a trinomial which factors:

$3(x + \_\_\_)(x + \_\_\_)$

$3(x + 2)(x + 2)$

This can be written as

$3(x + 2)^2$

p. 182: 38. $x^2y - 25y$ Notice that there is a common factor both terms, and that common factor is y. As in the previous problem, and in fact in ANY problem, the first step is to take out the common factor. Remember FCFF: Factor the Common Factor First!!

$x^2y - 25y$

$y(\_\_\_ - \_\_\_)$

$y(x^2 - 25)$

Notice that this is a difference of squares which factors:

$y(x - \_\_\_)(x + \_\_\_)$

$y(x - 5)(x + 5)$

p. 182: 39. $x^4 - 1$ **Notice that this is a difference of squares.**

The First times First must be x^4**:** x^2 **times** x^2

$$(x^2 \quad)(x^2 \quad)$$

The Last times Last must be 1: 1 times 1.

$$(x^2 \quad 1)(x^2 \quad 1)$$

Because the 1 is negative, use opposite signs.

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

The factor $(x^2 - 1)$ **is itself a difference of squares, and so it must be re-factored. However, the factor** $(x^2 + 1)$ **is the SUM of squares. It does not re-factor, and it must be left as it is in the final answer.**

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

$$(x - 1)(x + 1)(x^2 + 1)$$ **Final Answer!!**