Before Class:

☐ Read the objectives on page 84.

☐ Read the Helpful Hint boxes on pages 84, 85, and 87.

☐ Complete the exercises:

1. To combine like terms, add the __________________________ and multiply the result by the common variable factors.

2. An algebraic expression containing the sum or difference of like terms can be simplified by applying the __________________________ property.

3. Like terms have the same __________________________ raised to exactly the same __________________________.

During Class:

☐ Write your class notes. Neatly write down all examples shown as well as key terms or phrases with definitions. If not applicable or if you were absent, watch the Lecture Series (DVD) for this section and do the same (write down the examples shown as well as key terms or phrases). Insert more paper as needed.

<table>
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<th>Class Notes/Examples</th>
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Answers: 1) numerical coefficients  2) distributive  3) variables; powers
Section 2.1 Simplifying Algebraic Expressions

Class Notes (continued)  Your Notes

(Insert additional paper as needed.)
## Practice:

- Complete the Vocabulary and Readiness Check on page 89.
- Next, complete any incomplete exercises below. Check and correct your work using the answers and references at the end of this section.

### Review this example:

1. Simplify each expression by combining like terms.
   - a. \(7x - 3x\)
   - b. \(10y^2 + y^2\)
   - c. \(8x^2 + 2x - 3x\)
   
     - a. \(7x - 3x = (7 - 3)x = 4x\)
     - b. \(10y^2 + y^2 = 10y^2 + 1y^2 = (10 + 1)y^2 = 11y^2\)
     - c. \(8x^2 + 2x - 3x = 8x^2 + (2 - 3)x = 8x^2 - x\)

### Your turn:

2. Simplify the expression by combining any like terms.
   - \(3x + 2x\)

### Review this example:

   - \(-5a - 3 + a + 2\)
   
     \(-5a - 3 + a + 2 = -5a + 1a + (-3 + 2) = (-5 + 1)a + (-3 + 2) = -4a - 1\)

### Your turn:

4. Simplify the expression by combining any like terms.
   - \(8x^3 + x^3 - 11x^3\)

### Review this example:

5. Simplify the following expression.
   - \(-2(4x + 7) - (3x - 1)\)
   
     \(-2(4x + 7) - (3x - 1) = -8x - 14 - 3x + 1 = -11x - 13\)

### Your turn:

6. Simplify the expression. First use the distributive property to remove any parentheses.
   - \(5(x + 2) - (3x - 4)\)
### Review this example:

7. Write the following phrase as an algebraic expression. Then simplify if possible.

“Subtract $4x - 2$ from $2x - 3$.”

“Subtract $4x - 2$ from $2x - 3$” translates to $(2x - 3) - (4x - 2)$. Next, simplify the algebraic expression.

\[
(2x - 3) - (4x - 2) = 2x - 3 - 4x + 2 = -2x - 1
\]

### Your turn:

8. Write the following as an algebraic expression. Simplify if possible.

“Subtract $5m - 6$ from $m - 9$.”

### Review this example:

9. Write the following phrase as an algebraic expression and simplify if possible. Let $x$ represent the unknown number.

“The sum of twice a number, 3 times the number, and 5 times the number”

The phrase “the sum of” means we add.

\[
\begin{align*}
\text{twice a number} & \quad \text{added to} \quad \text{3 times the number} \quad \text{added to} \quad \text{5 times the number} \\
2x & \quad + \quad 3x & \quad + \quad 5x
\end{align*}
\]

Now simplify: $2x + 3x + 5x = 10x$

### Your turn:

10. Write the following phrase as an algebraic expression and simplify if possible. Let $x$ represent the unknown number.

“The sum of 5 times a number and $-2$, added to 7 times a number”

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<tbody>
<tr>
<td>a. $4x$</td>
<td>Ex 3, p. 85</td>
<td></td>
<td>6. $2x + 14$</td>
<td>Sec 2.1, Ex 31</td>
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<tr>
<td>b. $11y^2$</td>
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<td>c. $8x^2 - x$</td>
<td>Ex 3, p. 85</td>
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<td>2. $5x$</td>
<td>Sec 2.1, Ex 2</td>
<td>7. $-2x - 1$</td>
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<td>3. $-4a - 1$</td>
<td>Ex 4b, p. 86</td>
<td>8. $-4m - 3$</td>
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<td>4. $-2x^3$</td>
<td>Sec 2.1, Ex 16</td>
<td>9. $10x$</td>
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<tr>
<td>5. $-11x - 13$</td>
<td>Ex 6b, p. 87</td>
<td>10. $-2 + 12x$</td>
<td>Sec 2.1, Ex 73</td>
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☐ **Next, insert your homework.** Make sure you attempt all exercises asked of you and show all work, as in the exercises above. Check your answers if possible. Clearly mark any exercises you were unable to correctly complete so that you may ask questions later. **DO NOT ERASE YOUR INCORRECT WORK. THIS IS HOW WE UNDERSTAND AND EXPLAIN TO YOU YOUR ERRORS.**