Before Class:

☐ Read the objectives on page 138.

☐ Read the Helpful Hint boxes on pages 139 and 141.

☐ Complete the exercises:

1. The percents in a circle graph should have a sum of ___________________________.

2. Discounts are __________________________ the original price while markups are __________________________ the original price.

3. Percent increase or percent decrease is always a percent of ___________________________.

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.

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<thead>
<tr>
<th>Class Notes/Examples</th>
<th>Your Notes</th>
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Answers: 1) 100% 2) subtracted from; added to 3) the original number
Section 2.7 Percent and Problem Solving

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<th>Class Notes (continued)</th>
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(Insert additional paper as needed.)
Practice:

☐ Complete the Vocabulary and Readiness Check on page 143.

☐ 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. The number 120 is 15% of what number?

UNDERSTAND. Read and reread the problem. Let \( x \) = the unknown number.

TRANSLATE.
the number 120 is 15% of what number

\[
120 = \frac{15}{100} \cdot x
\]

SOLVE.

\[
\begin{align*}
120 &= 0.15x \\
800 &= x
\end{align*}
\]

INTERPRET. Check the proposed solution by finding 15% of 800 and verifying that the result is 120.

State: 120 is 15% of 800.

Your turn:
2. The number 45 is 25% of what number?

Review this example:
3. Cell Phones Unlimited recently reduced the price of a $140 phone by 20%. What is the discount and the new price?

UNDERSTAND. Read and reread the problem. Discount is the amount of money by which the cost of an item had been decreased. To find the discount, find 20% of $140.

discount = percent \cdot original price
discount = 20\% \cdot $140 = 0.20 \cdot $140 = $28

new price = original price – discount

new price = $140 – $28 = $112

INTERPRET. Check your calculations in the formulas, and also see if our results are reasonable.

State: The discount in price is $28 and the new price is $112.

Your turn:
4. A birthday celebration meal is $40.50 including tax. Find the total cost if a 15% tip is added to the cost. If needed, round to the nearest cent.
Review this example:
5. The cost of attending a public college rose from $9258 in 1996 to $12,796 in 2006. Find the percent increase, rounded to the nearest tenth of a percent. (Source: The College Board)

UNDERSTAND. Read and reread the problem. Let \( x \) = the percent increase.

TRANSLATE.
\[
\text{increase} = \text{new cost} - \text{old cost}
\]
\[
\text{increase} = $12,796 - $9258 = $3538
\]
The percent increase is a percent of the original number (the old cost).

\[
\begin{align*}
\text{increase} & \quad \text{is} \quad \text{what percent increase} \quad \text{of} \quad \text{old cost} \\
\downarrow & \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow \\
$3538 & \quad = \quad x \quad \cdot \quad $9528
\end{align*}
\]

SOLVE.
\[
3538 = x \cdot 9528
\]
\[
0.382 \approx x
\]
\[
38.2\% \approx x
\]

INTERPRET.
Check the proposed solution by finding 38.2\% of $9258 to find the increase in cost. Then add this increase in cost to $9258 to find the new cost, which should be about $12,796.

State: The percent increase in cost is approximately 38.2\%.

Your turn:
6. Iceberg lettuce is grown and shipped to stores for about 40 cents a head, and consumers purchase it for about 86 cents a head. Find the percent increase. (Source: Statistical Abstract of the United States)

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.