PERCENTS

Percent means *per cent*, or per every hundred. In other words, percent means how much of the whole amount you have. A percentage can also be represented as a fraction whose denominator is 100.

*Examples:* 46% means \[\frac{46}{100}\] or 46 out of 100.

10% means \[\frac{10}{100}\] or 10 out of 100. It can also be reduced to \[\frac{1}{10}\].

1. **Convert a percent to a fraction.**

   To convert a percentage into a fraction, divide the percentage number by 100, then reduce if necessary.

   *Examples:* 32% \(\rightarrow\) \[\frac{32}{100} = \frac{8}{25}\]

   25% \(\rightarrow\) \[\frac{25}{100} = \frac{5}{20}\]

2. **Convert a percent to a decimal.**

   To convert a percentage into a decimal shift the decimal point in the percentage two places to the left.

   *Examples:* 7% \(\rightarrow\) 0.07

   In this case, there is no decimal place shown in the percentage, however, it exists at the end of the number. Fill the required spaces with a 0.

   6.38% \(\rightarrow\) 0.0638

3. **Convert a decimal to a percent.**

   To change a decimal into a percentage shift the decimal point two places to the right.

   *Examples:* 0.36 \(\rightarrow\) 36%
4. **Convert a fraction to a percent.**

To convert a fraction into a percentage, first divide the numerator by the denominator and then change the decimal into a percentage.

*Examples:*

\[
\frac{3}{5} = 0.6 = 60\%
\]

\[
\frac{7}{8} = 0.875 = 87.5\%
\]

5. **Problems involving percents.**

When dealing with problems involving percentages, remember that “of” means multiplication and “is” means equals.

*Examples:*

**What is 15% of 260?**

First convert the percent to decimal: 15% = 0.15

Then convert the words into mathematical terms:

\[
\begin{align*}
\text{(what)} \cdot \text{(is)} \cdot \text{(15%)} \cdot \text{(of)} & \cdot 260 \\
y \cdot 0.15 \cdot 260 & = ?
\end{align*}
\]

Finally, solve the problem: 0.15 \times 260 = 39

*Answer:* 15% of 260 is 39.

**50 is what percent of 940?**

In this case the percentage is the unknown. Remember, first convert the words into mathematical terms:

\[
\begin{align*}
50 \cdot \text{(is)} \cdot \text{(what percent)} \cdot \text{(of)} & \cdot 940 \\
50 \cdot \text{y} \cdot 940 & = ?
\end{align*}
\]

Solve the problem: 50 = ? \times 940

\[
? = \frac{50}{940} = 0.053 \quad \text{or} \quad 5.3\%
\]
PERCENTS – EXERCISES

1. 15% of 750 is what number?

2. 85% of what number is 255?

3. What is 18% of 350?

4. 75 is what percent of 300?

5. What percent of 450 is 250?

6. What number is 20% of 45?

7. 195 is 35% of what number?

8. 150 is what percent of 500?

9. What is 6.5% of 45?

10. 10.5% of what number is 21?
PERCENTS – ANSWERS TO EXERCISES

1. \(0.15 \cdot 750 = x\)
   \(112.5 = x\)

2. \(y = 255 \div 0.85\)
   \(y = 300\)

3. \(x = 0.18 \cdot 350\)
   \(x = 63\)

4. \(75 = \frac{y \cdot 300}{100}\)
   \(25 = y\)

5. \(y = \frac{250 \cdot 100}{450}\)
   \(y = 55.56\)

6. \(x = 0.20 \cdot 45\)
   \(x = 9\)

7. \(195 = 0.35 \cdot y\)
   \(y = 557.14\)

8. \(150 = \frac{y \cdot 500}{100}\)
   \(y = 30\)

9. \(x = 0.065 \cdot 45\)
   \(x = 2.925\)

10. \(0.105 \cdot y = 21\)
    \(y = 200\)