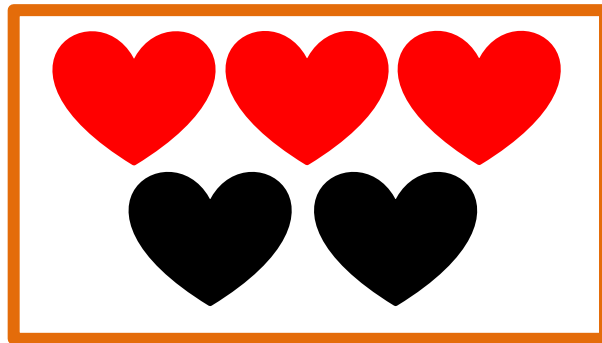


A Fraction as a Percent

 Guide Notes

A Fraction as a Percent

Look at the figure below. There are 5 hearts, three are **RED** and two are **BLACK**.



The figure above has two **PART-TO-WHOLE** ratios.

The ratio of **RED** hearts to the total number of hearts is **3:5**.

The ratio of the **BLACK** hearts to the total number of hearts is **2:5**.

What percent of the hearts is **RED**? What percent of the hearts is **BLACK**? Note that a **part-to-whole** ratio is more useful in comparing percent. Also note the "whole" means **100**!

How are you going to find the percentage, given that the second term of the ratio or the denominator of a fraction is not 100?

$$3:5 = ?\% \text{ and } 2:5 = ?\%$$

A Fraction as a Percent

 Guide Notes

Changing Fractions to Percent and Decimal

To change a fraction with a denominator which is not 100, follow these steps:

What percent of the hearts is **RED**?

Step 1: Identify the part-to-whole ratio.

red hearts : total number of hearts \longrightarrow **3:5**

Step 2: Write the ratio as a fraction.

$$\frac{3}{5}$$

Step 3: Scale up or scale down the given fraction so that the denominator is 100.

$$\frac{3}{5} = \frac{3 \times 20}{5 \times 20} = \frac{60}{100}$$

Step 4: Now that the denominator is 100, you can change it to percent!

$$\frac{60}{100} = \mathbf{60\%}$$

Step 5: Write the answer in decimal.

$$\mathbf{60\%} = \mathbf{0.6}$$

A Fraction as a Percent

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What percent of the hearts is **BLACK**?

Step 1: 2:5

Step 2: $\frac{2}{5}$

Step 3: $\frac{2}{5} = \frac{2 \times 20}{5 \times 20} = \frac{40}{100}$

Step 4: $\frac{40}{100} = 40\%$

Step 5: $40\% = 0.4$

Sample Problem 1:

Write $\frac{16}{25}$ as percent and decimal.

Solution:

Step 1: 16:25

Step 2: $\frac{16}{25}$

Step 3: $\frac{16}{25} = \frac{16 \times 4}{25 \times 4} = \frac{64}{100}$

Step 4: $\frac{64}{100} = 64\%$

Step 5: $64\% = 0.64$

A Fraction as a Percent Guide Notes

Changing Fractions to Percent and Decimal (The Easier Way!)

The following steps show an alternative way to write fraction as percent and decimal. But in a case like this...you need to write it as decimal first and then percent. Let's go back to the **RED** and **BLACK** hearts.

What percent of the hearts is **RED**?

Step 1: Identify the part-to-whole ratio.

red hearts : total number of hearts \longrightarrow **3:5**

Step 2: Write the ratio as a fraction.

$$\frac{3}{5}$$

Step 3: Divide the numerator by the denominator

$$3 \div 5 = 0.6 \longrightarrow 60\%$$

What percent of the hearts is **BLACK**?

Step 1: 2:5

Step 2: $\frac{2}{5}$

Step 3: $2 \div 5 = 0.4 \longrightarrow 40\%$

A Fraction as a Percent Guide Notes

Changing Fractions to Percent and Decimal with Denominators that are NOT Factors of 100

If the denominator of a fraction is not a factor of 100, these steps can help you change it to percent and decimal.

Example: Write $\frac{3}{8}$ as percent and decimal.

Step 1: Divide the numerator and denominator.

$$\frac{3}{8} = 0.38$$

Step 2: Change it to percent.

$$0.38 = 38\%$$

In cases like these, there is no other way to do it but to change the fraction to decimal first, then to percent. It cannot go the other way around.

Sample Problem 2:

Write $\frac{9}{11}$ as a percent and decimal.

Solution:

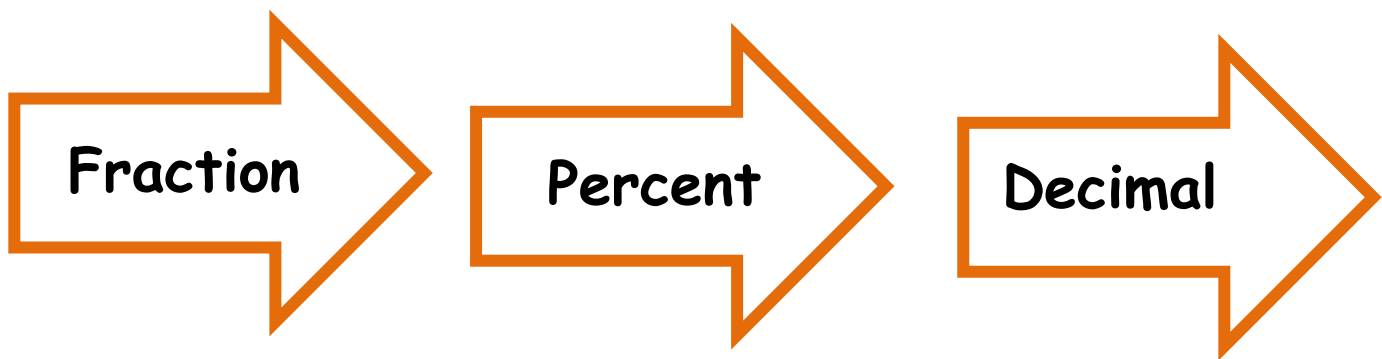
Step 1: $\frac{9}{11} = 0.82$

Step 2: $0.82 = 82\%$

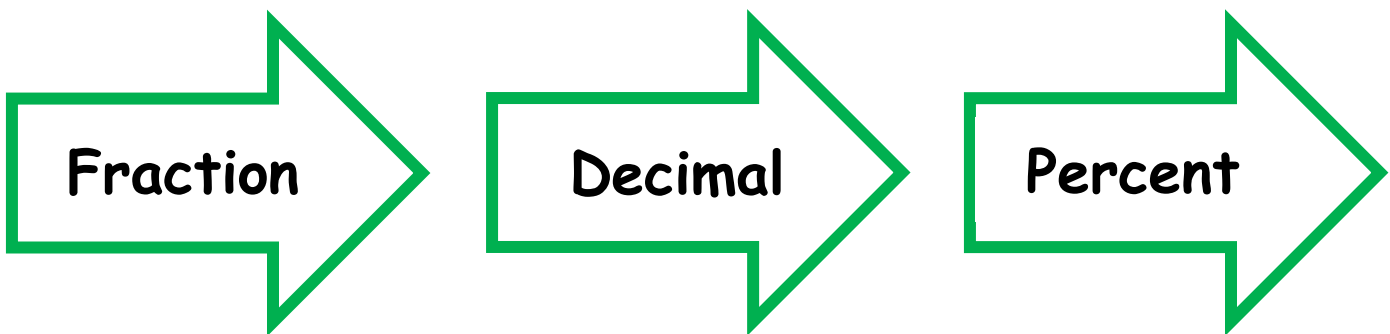
A Fraction as a Percent Guide Notes

The order of changing fractions, decimals and percent into whatever forms share a certain relationship. And there is no really particular order of steps to follow, except if the denominator of the fraction is not a factor of 100. You can convert them into different forms without any particular order as long as the process is well supported and valid.

Option 1:



Option 2:



A Fraction as a Percent Guide Notes

Sample problem 3:

Sam had already spent $\frac{3}{4}$ of his monthly allowance.

- What percent of his allowance did he already spend?
- What percent of his allowance does he have left?
- Express the allowance he has left in fraction.

Solution:

a. Step 1: $\frac{3}{4} = 0.75$

Step 2: $0.75 = 75\%$

Sam had spent 75% of his allowance.

b. $100\% - 75\% = 25\%$

Sam still has 25% of his allowance left.

c. $25\% = \frac{25}{100} = \frac{1}{4}$