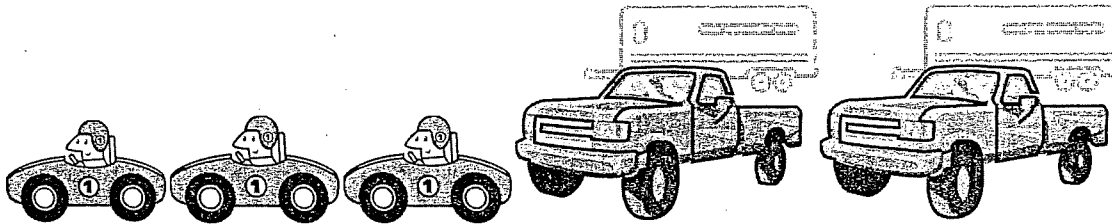


Lesson 25: A Fraction as a Percent

Classwork

Example 1



Sam says 50% of the vehicles are cars. Give three different reasons or models that prove or disprove Sam's statement. Models can include tape diagrams, 10 × 10 grids, double number lines, etc.

1. $\frac{3}{5} = \frac{60}{100}$ 60% are cars.

2.
 A horizontal bar divided into five equal segments. The first three segments are labeled 'CARS' and the last two are labeled 'TRUCKS'. Below the bar, the numbers 0, 20, 40, 60, 80, and 100 are marked at the segment boundaries.

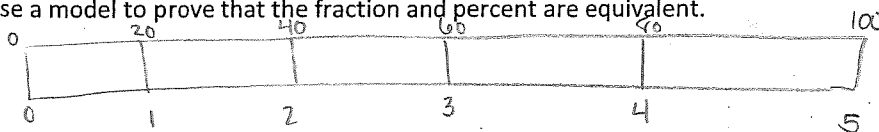
3. $50\% = \frac{50}{100} = \frac{1}{2}$ $5 \times \frac{1}{2} = \frac{5}{2} = 2\frac{1}{2}$ There are $2\frac{1}{2}$ more cars.

Handwritten notes for problem 3: $\frac{2\frac{3}{4}}{4}$ and $2\frac{1}{2}$ with a horizontal line under the $\frac{1}{2}$ in the second term.

How is the fraction of cars related to the percent?

$\frac{3}{5}$ is equal to $\frac{60}{100}$. Since % are out of 100, the two are equivalent.

Use a model to prove that the fraction and percent are equivalent.



$\frac{3}{5} = 60\%$

What other fractions or decimals also represent 60%?

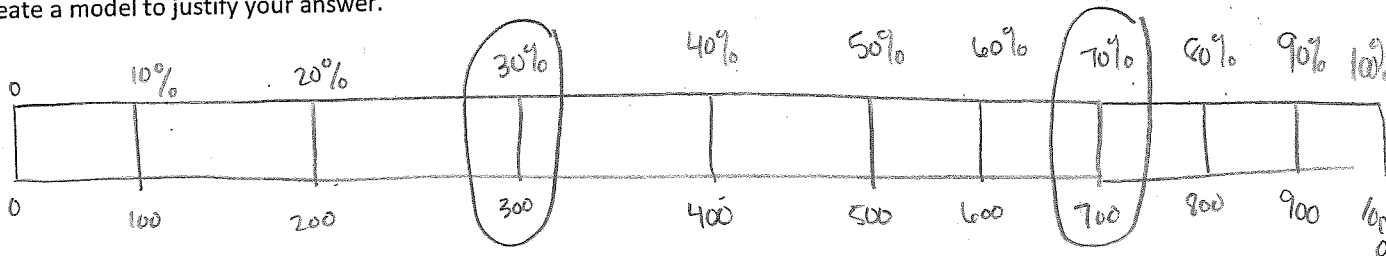
$\frac{3}{5} = \frac{6}{10} = \frac{9}{15} = \frac{12}{20} = \frac{15}{25} = 0.6$

Example 2

A survey was taken that asked participants whether or not they were happy with their job. An overall score was given. 300 of the participants were unhappy while 700 of the participants were happy with their job. Give a part-to-whole fraction for comparing happy participants to the whole. Then write a part-to-whole fraction of the unhappy participants to the whole. What percent were happy with their job, and what percent were unhappy with their job?

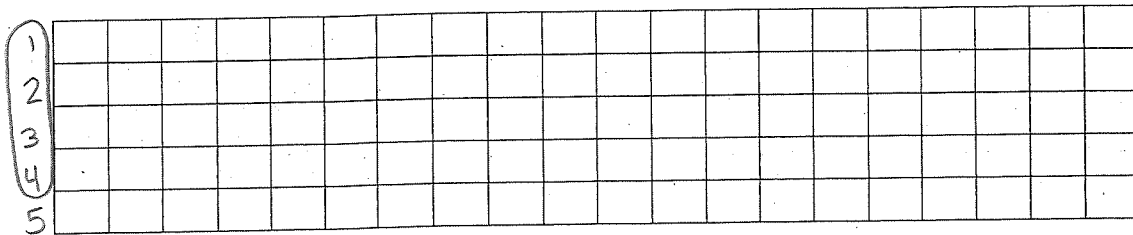
Happy	$\frac{700}{1000} = \frac{70}{100}$	70%	Unhappy	$\frac{300}{1,000}$	30%
	Fraction	Percent		Fraction	Percent

Create a model to justify your answer.



Exercise 1

Renita claims that a score of 80% means that she answered $\frac{4}{5}$ of the problems correctly. She drew the following picture to support her claim:



Is Renita correct? Yes Why or why not?

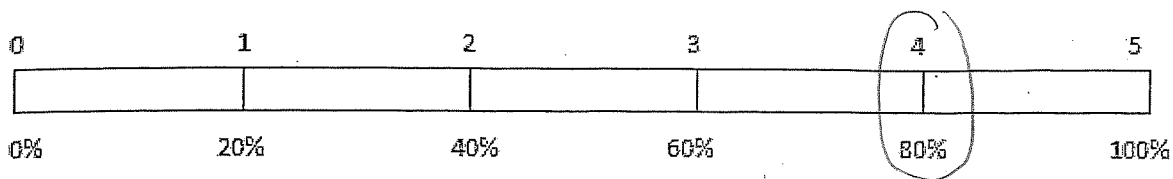
$$\frac{4}{5} = \frac{40}{50} = \frac{80}{100} = 80\%$$

How could you change Renita's picture to make it easier for Renita to see why she is correct or incorrect?

SKIP.

Exercise 2

Use the diagram to answer the following questions.



80% is what fraction of the whole quantity?

$$\frac{4}{5}$$

$\frac{1}{5}$ is what percent of the whole quantity?

$$20\%$$

50% is what fraction of the whole quantity?

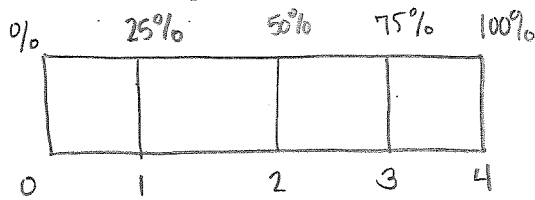
$$\frac{2\frac{1}{2}}{5} \text{ or } \frac{2.5}{5} = \frac{25}{50}$$

1 is what percent of the whole quantity?

$$1 = \frac{5}{5} \text{ This would be } 100\%.$$

Exercise 3

Maria completed $\frac{3}{4}$ of her workday. Create a model that represents what percent of the workday Maria has worked.



What percent of her workday does she have left?

She has completed 75% of the workday

How does your model prove that your answer is correct?

My model shows that $\frac{3}{4} = 75\%$ & that the $\frac{1}{4}$ she has left is about 25%.

Exercise 4

Matthew completed $\frac{5}{8}$ of his workday. What decimal would also describe the portion of the workday he has finished?

$$8 \overline{) 5} = 0.625 \text{ or } \frac{5}{8} \text{ of } 100\% = 62.5\% \quad \frac{5}{8} = 100\% = 62.5\%$$

How can you use the decimal to get the percent of the workday Matthew has completed?

$$\frac{5}{8} = 0.625 \text{ This is } \frac{625}{1000} \text{ If I divide both numerator \& denominator by 10}$$

$$\text{I see that } \frac{625}{1000} \div 10 = \frac{62.5}{100}$$

Exercise 5

Complete the conversions from fraction to decimal to percent.

Fraction	Decimal	Percent
$\frac{1}{8}$	0.125	12.5%
$\frac{7}{20}$	0.35	35%
$\frac{84.5}{100} = \frac{845}{1000}$	0.845	84.5%
$\frac{32.5}{100} = \frac{325}{1,000}$	0.325	32.5%
$\frac{2}{25}$	0.08	8%

SKIP Exercise 6

Choose one of the rows from the conversion table in Exercise 5, and use models to prove your answers. (Models could include a 10×10 grid, a tape diagram, a double number line, etc.)