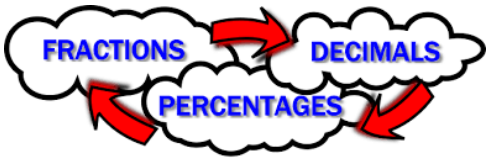
Intro: Fractions, Decimals and Percentages

Wednesday, 7 February 2018 5:23 pm



Lesson aim:
By the end of the lesson I want you to be able to turn a fraction into a decimal and a percentage.

Key questions

1. What is a fraction?
2. What is a decimal?
3. What is a percentage?
4. How do I change between them?

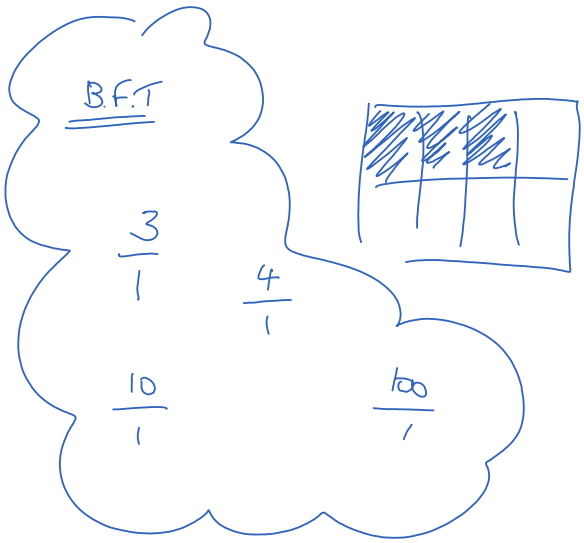
What is a fraction?

$\frac{3}{8}$ ← out of $\frac{3}{8} = 3 \div 8$

÷

$\frac{1}{2}$ $\frac{1}{4}$ $\frac{3}{4}$ 1½ $\frac{3}{2}$ → 3 ½'s $3 \times \frac{1}{2}$

$\frac{10}{7}$



What is a decimal?

0·3 0·5 1·2 0·347968 (5dp)

⇒ 3·1415972 (7dp) 0·0003 (4dp)

Decimal Places
Number of digits after the decimal point

What is a percentage?

50% off 20% 10% 0%

0% impossible certain 100% 100%

50% even chance.

$\frac{10}{20}$ = 50% $\frac{13}{17}$ 52·31%

Converting from a fraction to a decimal

eg) $\frac{1}{2} = 1 \div 2$

$2\overline{)1\cdot0}$ = 0·5

$\frac{1}{2} = 0.5$

$4\overline{)1\cdot00}$ = 0·25

$\frac{1}{4} = 0.25$

eg2 $\frac{1}{4} = 1 \div 4$

$$4\overline{)1.00} = 0.25$$

$\frac{1}{4} = 0.25$

eg3 $\frac{3}{10} = 3 \div 10$

$$10\overline{)3.0} = 0.3$$

$\frac{3}{10} = 0.3$

3.0

0.3

$\frac{3}{10} = 0.3$

Questions to be done now ...

Write the following fractions as decimals

1. $\frac{1}{2}$ 0.5 ✓
2. $\frac{1}{4}$ 0.25 ✓
3. $\frac{3}{4}$ 0.75 ✓
4. $\frac{1}{10}$ 0.1 ✓
5. $\frac{2}{5}$ 0.4 ✓
6. $\frac{7}{10}$ 0.7 ✓
7. $\frac{1}{8}$ 0.125
8. $\frac{9}{10}$ 0.9 ✓

Turning a decimal number into a percentage ×100

eg1 $0.9 \xrightarrow[2]{\times 100} = 90\%$

$0.90 = 90\%$

FRACTION → DECIMAL → %

PER CENT: OUT OF 100 /100 100 ⇒

DECIMAL → PERCENT (×100)

eg2 $0.23 = 23\%$

$0.23 \xrightarrow[2]{\times 100}$ 0.23

23%

Questions to be done now:

Write the following decimals are percentages

1. 0·3 30%
2. 0·67 67%
3. 0·9 90%
4. 0·23 23%
5. 0·369 36.9%
6. 1·2 120%
7. 0·99 99%
8. 0·03 3%
9. 0·0021 0.21%
10. 1 100%

1·00%

Joining it all together

Write the following fractions as percentages by writing them as a decimal first.

1. $\frac{1}{2}$ 50%
2. $\frac{3}{5}$ 60%
3. $\frac{6}{10}$ 60%
4. $\frac{4}{5}$ 80%
5. $\frac{1}{4}$ 25%
6. $\frac{3}{4}$ 75%
7. $\frac{9}{100}$ 9%
8. $\frac{63}{100} = 63\%$
9. $1 = 100\%$

% out of 100 $\frac{9}{100} = 9\%$

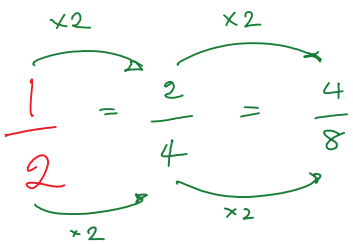


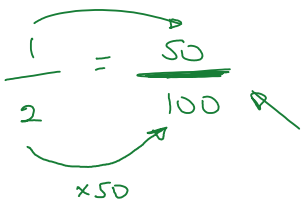
BIG FAT TRICKS

Sometimes we can make fractions into percentages without having to turn it into a decimal first.
If we can make the bottom of the fraction into the number 100, then we can write it straight as a fraction.
Remember: Percent means "out of 100" … or … "divided by 100"

Recap: Equivalent fractions

We can write the same fraction in lots of different ways. Think of the many ways we can write the fraction shown below:





$\frac{50}{100} = 50\%$

What about the following fraction?

×10

What about the following fraction?

$\frac{1}{10} = \frac{10}{100}$ (×10) $\frac{10}{100} = 10\%$

And the next one?

$\frac{7}{20} = \frac{35}{100} = 35\%$ (×5)

All of the fractions above can be turned into a different fraction with the number 100 at the bottom.
If a fraction has the 100 at the bottom we can write the percentage down straight away!!!!

eg $\frac{1}{2}$ $\frac{50}{100}$ $\frac{1}{10}$ $\frac{10}{100}$ $\frac{7}{20}$ $\frac{35}{100}$

Work for you! Write the following fractions as a number out of 100 by using equivalent fractions

1. $\frac{4}{10} = \frac{40}{100}$ (×10) 2. $\frac{8}{10} = \frac{80}{100}$ 3. $\frac{1}{2} = \frac{50}{100}$ 4. $\frac{3}{25} = \frac{12}{100}$ (×4)

5. $\frac{9}{50} = \frac{18}{100}$ 6. $\frac{830}{1000} = \frac{83}{100}$ (÷10) 7. $\frac{1}{1} = \frac{100}{100}$ 8. $\frac{13}{20} = \frac{65}{100}$ (×5)

9. $\frac{3}{5} = \frac{60}{100}$

Write the following fractions as percentages (without changing them to decimals first).

1. $\frac{1}{2}$ 2. $\frac{13}{20}$ 3. $\frac{3}{5}$ 4. $\frac{4}{10}$

2

5. $\frac{3}{25}$

20

6. $\frac{9}{50}$

5

7. $\frac{9}{50}$

10

8. $\frac{850}{1000}$

9. $\frac{8}{10}$