

YEAR 8 — DEVELOPING NUMBER... Fractions & Percentages

What do I need to be able to do?

By the end of this unit you should be able to:

- Convert between FDP less than and more than 100.
- Increase or decrease using multipliers.
- Express an amount as a percentage.
- Find percentage change.

Keywords

Percent: parts per 100 — written using the % symbol

Decimal: a number in our base 10 number system. Numbers to the right of the decimal place are called decimals.

Fraction: a fraction represents how many parts of a whole value you have.

Equivalent: of equal value.

Reduce: to make smaller in value.

Growth: to increase/ to grow.

Integer: whole number, can be positive, negative or zero.

Invest: use money with the goal of it increasing in value over time (usually in a bank).

Convert FDP

R

70/100 → This also means 70 out of 100 squares → 70 "hundredths" = 7 "tenths" = 0.7 → 70 hundredths = 70%.

Using a calculator → → $\frac{70}{100} = 0.7$ → Convert to a decimal → $\times 100$ converts to a percentage.

This will give you the answer in the simplest form.

Be careful of recurring decimals
eg $\frac{1}{3} = 0.333333$
 $\frac{2}{3} = 0.\dot{3}$
The dot above the 3

Fraction/ Percentage of amount

R

Find $\frac{3}{5}$ of £60 → $\frac{3}{5} \times 60 = 36$ → £36

Remember $\frac{3}{5} = 60\% = 0.6$

10% of £60 = £6
50% of £60 = £30
60% of £60 = £36

Remember $\frac{3}{5} = 60\% = 0.6$
60% of £60 = $0.6 \times 60 = £36$

Convert FDP < and > 100%

100 hundredths = 10 tenths = 100% → 40 hundredths = 4 tenths = 40% → 140 hundredths = 14 tenths = 140%

$100\% + 40\% = 1 + 0.4 = 1.40 = 140$

Percentage decrease: Multipliers

100% → Decrease by 58% → 42%

$100\% - 58\% = 42\%$
 $100 - 0.58 = 0.42$ ← Multiplier Less than 1

Percentage increase: Multipliers

100% → Increase by 12% → 112%

$100\% + 12\% = 112\%$
 $100 + 0.12 = 1.12$ ← Multiplier More than 1

Express as a % - Non-calculator

7 per every 10 are orange → $\frac{7}{10}$ → This means that 70 per every 100 are orange → $\frac{70}{100}$ → 70%

27 per every 50 shaded → $\frac{27}{50}$ → 54 per every 100 shaded → $\frac{54}{100}$ → 54%

Denominator 100 Equivalent fractions

Express as a % - Calculator

Rosie $\frac{13}{30}$ → $\frac{13}{30}$ → $\times 100$ → 43.3333...% → 43%

Can't use equivalence easily to find 'per hundred'

This is the same as $\frac{13}{30}$

Decimal percentages are still a percentage.

Percentage change

I bought a phone for £200. A year later sold it for £125.

100% → £200 → £125 → Percentage loss

All values of change compare to the ORIGINAL value.

$\frac{75}{200} \times 100 = 37.5\%$

$\frac{\text{Difference in value}}{\text{Original value}} \times 100$

I bought a house for £180,000, I later sold it for £216,000.

100% → £180,000 → £216,000 → Percentage profit

Money made (profit value) $\frac{36000}{180000} \times 100 = 20\%$

Choose appropriate method

The language and wording of the question is the key.

Have you represented the question in a bar model?
Can you use a calculator?