

YEAR 8 - DEVELOPING NUMBER... Fractions & Percentages

@whisto_maths

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 = 70 "hundredths" = 7 "tenths" = 0.7 → 70 hundredths = 70%.

Using a calculator → → S-D → Convert to a decimal → × 100 converts to a percentage.

This will give you the answer in the simplest form.

Be careful of recurring decimals

eg $\frac{1}{3} = 0.333333$

$\frac{3}{3} = 0.\dot{3}$

The dot above the 3

Fraction/ Percentage of amount

R

Find $\frac{3}{5}$ of £60

← £60 →

 ← £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 × 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% →

 ← 42% → Decrease by 58%

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

Percentage increase: Multipliers

← 100% → → 12% →

 Increase by 12%

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

Express as a % - Non-calculator

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

$\frac{7}{10} = \frac{70}{100}$

27 per every 50 shaded → 54 per every 100 shaded → 54%

$\frac{27}{50} = \frac{54}{100}$

Denominator 100 Equivalent fractions

Express as a % - Calculator

Rosie

$\frac{13}{30}$ → $\frac{13}{30}$ → × 100 → 43.333...% = 43%

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

This is the same as 13 ÷ 30

Decimal percentages are still a percentage.

Percentage change

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

← 100% →

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

All values of change compare to the ORIGINAL value.

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

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

← 100% →

 Percentage profit $\frac{36000}{180000} \times 100 = 20\%$

Money made (profit value)

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?