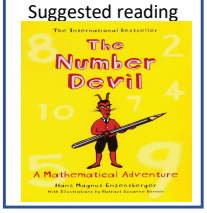
Waingels Maths

Year 8 – Developing Number

Fractions & Percentages

Suggested reading



Want to know more? Scan the QR code to visit the curriculum overview for Year 8 Maths, including topic summaries, key words, and books that you may want to read in your own time

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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)

$\frac{70}{100}$ → This also means 70 ÷ 100 → 70 out of 100 squares → 70 "hundredths" = 7 "tenths" = 0.7 → 70 hundredths = 70%

Using a calculator

→ S⇌D Convert to a decimal

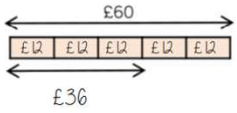
This will give you the answer in the simplest form

× 100 converts to a percentage

Be careful of recurring decimals
eg $\frac{1}{3}$ = 0.3333333
= $0.\dot{3}$
The dot above the 3

Fraction/ Percentage of amount (R)

Find $\frac{3}{5}$ of £60



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

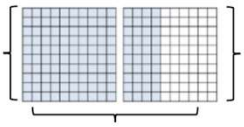
10% of £60 = £6
50% of £60 = £30
60% of £60 = £36

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

60% of £60
= 0.6 × 60
= £36

Convert FDP < and > 100%

100 hundredths
10 tenths
100%

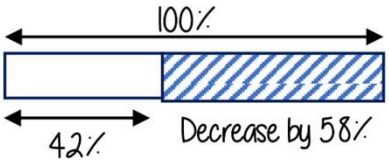


40 hundredths
4 tenths
40%

140 hundredths
14 tenths
140%

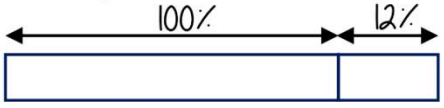
100% + 40%
1 + 0.40
= 1.40

Percentage decrease: Multipliers



100% − 58% = 42%
1.00 − 0.58 = 0.42 ← Multiplier Less than 1

Percentage increase: Multipliers



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

Express as a % - Non-calculator

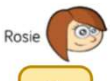
Percent – per hundred

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



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

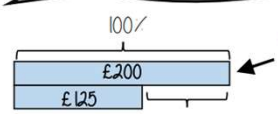
Can't use equivalence easily to find 'per hundred'

This 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

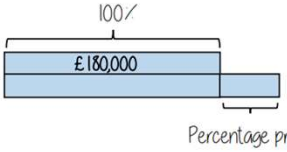


All values of change compare to the ORIGINAL value

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

Difference in value / Original value × 100

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



Percentage profit

Money made (profit value) → $\frac{36000}{180000}$ × 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?