

What do I need to be able to do?

- By the end of this unit you should be able to:
- Use FDP equivalence
 - Calculate percentage increase and decrease
 - Express percentage change
 - Solve reverse percentage problems
 - Solve percentage problems (calculator and non calculator problems)

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).
Multiplier: the number you are multiplying by
Profit: the income take away any expenses/ costs

FDP Equivalence R

Percentage
 100% = a whole = 100 hundredths

10 hundredths
 10 out of 100
 10%

One whole = 100 hundredths
 $\frac{10}{100} = \frac{1}{10} = 0.10$ One hundredth (one whole split into 100 equal parts)

ones	tenths	hundredths
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Converting FDP R

$\frac{70}{100}$ → This also means 70 - 100 → 70 out of 100 squares → 70 hundredths = 70% → 70 hundredths = 70%

Using a calculator → $\frac{70}{100} = 0.7$ → 70 "hundredths" = 7 "tenths" = 0.7

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

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

Percentage Increase/ Decrease R

Decrease
 100% → 42% → Decrease by 58%

Increase
 100% → Increase by 12%

Multiplier Less than 1: $100 - 0.58 = 0.42$

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

Percentage change R

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

All values of change compare to the ORIGINAL value

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

Reverse Percentages

40% of my number is 16. What am I thinking of?

Original Number (100%)
 4 4 4 4 4 4 4 4 4 4 4
 16

140% of my number is 84. What is the original number?

Original Number (100%)
 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
 84

Try to scale down to 10% or 1% and then scale back up to 100%.

$40\% = 16$
 $10\% = 4$
 $100\% = 40$

$140\% = 84$
 $10\% = 6$
 $100\% = 60$

Difference in values / Original value $\times 100$

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

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