

## 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 - 100 → 70 out of 100 squares → 70 "hundredths" = 7 "tenths" = 0.7 → 70 hundredths = 70%.

Using a calculator:  $\frac{70}{100} = 0.7$  →  $0.7 \times 100 = 70\%$

Be careful of recurring decimals  
 eg  $\frac{1}{3} = 0.333333$   
 $\frac{3}{10} = 0.3$   
 The dot above the 3

## Fraction/ Percentage of amount

**R**

Find  $\frac{3}{5}$  of £60

£60 → £12, £12, £12, £12, £12 → £36

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 =  $0.6 \times 60 = £36$

## Convert FDP < and > 100%

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

$100\% + 40\% = 1 + 0.4 = 1.4$

## Percentage decrease: Multipliers

100% → 42% → Decrease by 58% → Multiplier Less than 1

$100\% - 58\% = 42\%$   
 $100 - 0.58 = 0.42$

## Percentage increase: Multipliers

100% → 12% → Increase by 12% → Multiplier More than 1

$100\% + 12\% = 112\%$   
 $100 + 0.12 = 1.12$

## 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'

Decimal percentages are still a percentage.

## Percentage change

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

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

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

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

Difference in value / Original value × 100

## 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?