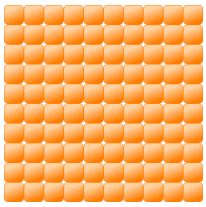
Name & Surname: _____ Class: _____ Date: _____

Fractions, Decimals and Percentages



Converting and comparing, including over 100%

About 45 minutes Level ★★★☆☆

Percentages, fractions and decimals

A **percentage** means parts per **hundred**. So 1% = $\frac{1}{100}$ = 0.01.

- To change a **decimal** to a percentage, × 100. To change a percentage to a decimal, ÷ 100.
- To change a **fraction** to a decimal, ÷ top by bottom. Then × 100 for a percentage.
- To find one quantity as a **percentage** of another: (part ÷ whole) × 100%.
- 100% = 1, so over 100% is more than 1. A percentage works as a **multiplier**.

Task A

/2

Study each example, then try the paired question using the same steps.

WORKED EXAMPLE

Express 18 out of 40 as a percentage.

1. Write as a **fraction**: $\frac{18}{40}$
2. Divide for a **decimal**: 18 ÷ 40 = 0.45
3. Multiply for a **percentage**: 0.45 × 100% = 45%

Answer: 45%

YOUR TURN

Express 12 out of 30 as a percentage.

Answer: _____

WORKED EXAMPLE

Write 135% as a fraction and a decimal.

1. Use per **hundred**: 135% = $\frac{135}{100}$
2. Simplify the **fraction**: $\frac{135}{100} = \frac{27}{20} = 1\frac{7}{20}$
3. Divide for the **decimal**: 135 ÷ 100 = 1.35

Answer: $\frac{27}{20}$ = 1.35

YOUR TURN

Write 150% as a fraction and a decimal.

Answer: _____

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Switch Between Forms

Practise quick conversions between fractions, decimals and percentages.

Key words

percentage: parts per hundred

fraction: part of a whole with a top and bottom number

decimal: number using tenths and hundredths

per hundred: out of 100

multiplier: number you multiply by

Task B

/12

Convert between fractions, decimals and percentages.

WARM UP

1 Write 43% as a **decimal**.

Answer: _____

2 Write 0.7 as a **percentage**.

Answer: _____

3 Write $\frac{3}{4}$ as a **decimal**.

Answer: _____

4 Write $\frac{1}{5}$ as a **percentage**.

Answer: _____

PRACTISE

5 Write 0.125 as a **fraction** in its simplest form.

Answer: _____

6 Write 65% as a **fraction** in its simplest form.

Answer: _____

7 Put these in **order** from smallest to largest: 0.62, $\frac{3}{5}$, 63%.

Answer: _____

8 Student A says 8% as a **decimal** is 0.8. Is Student A **correct**? Explain how you know.

Answer: _____

PROBLEM SOLVING

9 A phone battery is 0.85 **full**. What **percentage** is this?

Answer: _____

10 In a class vote, $\frac{3}{8}$ voted for longer **break**. What **percentage** is this?

Answer: _____

11 Which is **larger**, 0.4 or 38%? Explain how you know.

Answer: _____

12 A recipe uses $\frac{1}{10}$ of a litre of **syrup**. Write this as a **decimal** in litres.

Answer: _____

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One Quantity As Percentage

Express one quantity as a percentage of another, including over 100%.

Task C

/12

Express quantities as percentages and use multipliers over 100%.

WARM UP

1. Write 135% as a **decimal**.

Answer: _____

2. Write 1.5 as a **percentage**.

Answer: _____

3. Write 120% as a **multiplier**.

Answer: _____

4. Write 2 as a **percentage**.

Answer: _____

PRACTISE

5. Express 18 out of 50 as a **percentage**.

Answer: _____

6. Express 17 out of 25 as a **percentage**.

Answer: _____

7. Student B says 150% is **less** than 1. Is Student B **correct**? Explain how you know.

Answer: _____

8. A price is multiplied by 1.08. What **percentage** is this of the **original**?

Answer: _____

PROBLEM SOLVING

9. A maths test is out of 40 **marks**. A student scores 28 **marks**. What **percentage** is this?

Answer: _____

10. A £20 game rises to £23. The **increase** is what **percentage** of £20?

Answer: _____

11. A plant grows from 40 cm to 52 cm. What **percentage** of the **original** height is the new height?

Answer: _____

12. Compare two **discounts**: 0.25 off and 30% off. Which is **larger**? Explain how you know.

Answer: _____

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Sort And Compare

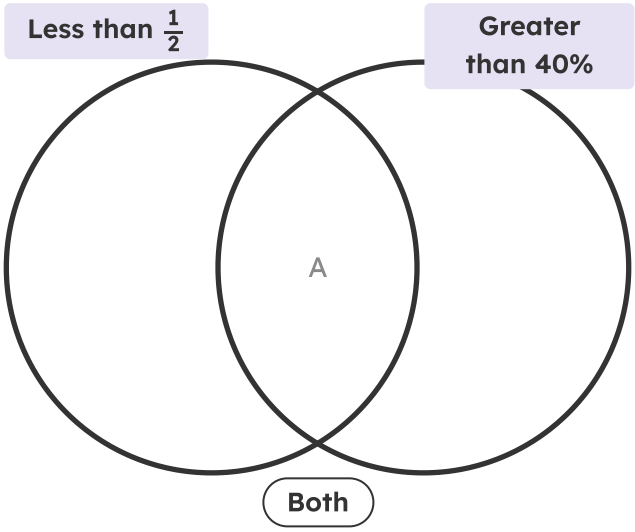
Compare quantities by sorting them using percentages.

↑↓ Task D

Example done for you

/5

Sort each value into less than $\frac{1}{2}$, greater than 40%, or both.



A ~~The **value** 0.45~~

B The **value** 70%

C The **value** 125%

D The **value** 0.48

E The **value** $\frac{1}{4}$

F The **value** $\frac{3}{10}$

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Bars And Tables

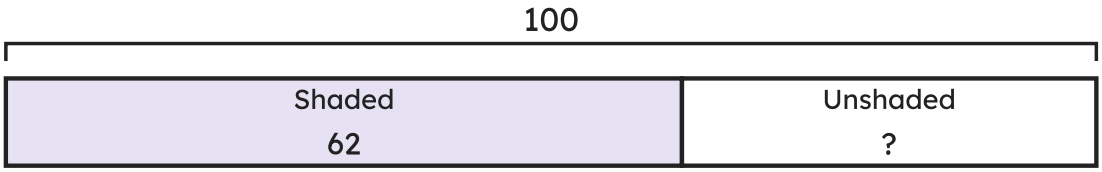
Use bar models to compare fractions, decimals and percentages.

Task E

/4

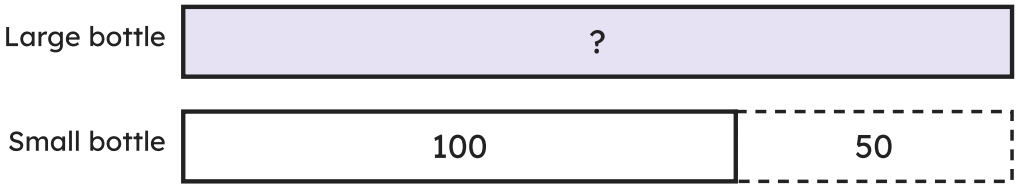
Use the bar models to work with percentages.

1. A **grid** has 100 small **squares**. 62 squares are **shaded**. How many squares are unshaded?



Answer: _____ **squares**

2. A small bottle holds 100 ml. A large **bottle** holds 50 ml **more**. How much does the large bottle hold?



Answer: _____ **ml**

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Fractions, Decimals and Percentages

⁒ Task F

/12

Fill in the missing fractions, decimals and percentages.

Fraction	Decimal	Percentage
$\frac{1}{2}$		
	0.75	
		20%
$\frac{9}{10}$		
	1.25	
		130%

How did I do?

Circle a face for each line.

I can convert between fractions, decimals and percentages. ☹ 😐 ☺

I can express one quantity as a percentage of another. ☹ 😐 ☺

I can compare quantities and work with percentages over 100%. ☹ 😐 ☺

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Answer sheet: Fractions, Decimals and Percentages

Task A

1. 40%
2. $\frac{3}{2}$ = 1.5

Task B

1. 0.43
2. 70%
3. 0.75
4. 20%
5. $\frac{1}{8}$
6. $\frac{13}{20}$
7. $\frac{3}{5}$, 0.62, 63%
8. No, 8% = 0.08, not 0.8, because $\frac{8}{100}$ = 0.08
9. 85%
10. 37.5%
11. 0.4 is larger because 0.4 = 40% which is greater than 38%
12. 0.1 litres

Task C

1. 1.35
2. 150%
3. 1.2
4. 200%
5. 36%
6. 68%
7. No, 150% = 1.5 which is greater than 1
8. 108%
9. 70%
10. 15%
11. 130%
12. 30% is larger because 0.25 = 25% which is less than 30%

Task D

Less than $\frac{1}{2}$ only: E, F

Both: A, D

Greater than 40% only: B, C

Task E

1. 38 squares
2. 150 ml

Task F

1. $\frac{1}{2}$ = 0.5 = 50%
2. $\frac{3}{4}$ = 0.75 = 75%
3. $\frac{1}{5}$ = 0.2 = 20%
4. $\frac{9}{10}$ = 0.9 = 90%
5. $\frac{5}{4}$ = 1.25 = 125%
6. $\frac{13}{10}$ = 1.3 = 130%

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