

Changing **fractions** and **decimals** to **percentages**.

A Change a **fraction** to a percentage.
Multiply by 100.

$$\frac{1}{4} \times \frac{100}{1} = \frac{100}{4} = 25\%$$

$$\frac{2}{5} \times \frac{100}{1} = \frac{200}{5} = 40\%$$

B Change a **decimal** to a percentage.
Multiply by 100.

$$0.25 \times 100 = 25\%$$

$$0.4 \times 100 = 40\%$$

Move the digits two places to the left!



2. Now write each of the following as **percentages**.

(a) $\frac{1}{2} =$ _____ (b) $0.09 =$ _____ (c) $0.5 =$ _____ (d) $\frac{4}{5} =$ _____ (e) $0.55 =$ _____

(f) $\frac{3}{20} =$ _____ (g) $0.63 =$ _____ (h) $\frac{79}{100} =$ _____ (i) $\frac{9}{10} =$ _____ (j) $0.98 =$ _____

Changing **fractions** to **percentages**. Simplify first!

A $\frac{7}{20} \times \frac{100^5}{1} \rightarrow \frac{35}{1} = 35\%$

B $\frac{19}{25} \times \frac{100^4}{1} \rightarrow \frac{76}{1} = 76\%$

C $\frac{23}{50} \times \frac{100^2}{1} \rightarrow \frac{46}{100} = 46\%$

3. Try simplifying first to change the **fractions** to **percentages**.

(a) $\frac{7}{50}$ (b) $\frac{11}{25}$ (c) $\frac{3}{5}$ (d) $\frac{13}{20}$ (e) $\frac{1}{2}$ (f) $\frac{9}{25}$ (g) $\frac{8}{20}$ (h) $\frac{13}{25}$ (i) $\frac{19}{20}$

Some fractions don't divide evenly and we have more than 2 decimal places.

$$\frac{7}{3} \times \frac{100^{20}}{1} = \frac{140}{3}$$

$$3 \overline{) 140} = 46 \frac{2}{3} = 46\frac{2}{3}\%$$

or

$$\begin{array}{r} 46.6666 \text{ etc.} \\ 3 \overline{) 140.0000} \end{array}$$

$$0.466666 \times 100 = 46.66\% \text{ (stop after 2 decimal places)}$$

4. Change these **fractions** to **percentages**. Stop after 2 decimal places.

(a) $\frac{2}{3}$ (b) $\frac{3}{7}$ (c) $\frac{4}{9}$ (d) $\frac{7}{30}$ (e) $\frac{1}{6}$ (f) $\frac{5}{12}$ (g) $\frac{5}{8}$ (h) $\frac{5}{6}$ (i) $\frac{7}{9}$ (j) $\frac{11}{12}$

5. Change these **decimals** to **percentages** (2 decimal places).

(a) 0.6666 (b) 0.0378 (c) 0.4533 (d) 0.1666 (e) 0.7488 (f) 0.9327

16. Fractions, Decimals and Percentages

Mental Computation

Write as **percentages**.

- | | | | |
|----------------------------|---------------------------|---------------------------|--------------------------|
| 1. $\frac{9}{100} =$ _____ | 2. $\frac{3}{10} =$ _____ | 3. $\frac{7}{50} =$ _____ | 4. $\frac{3}{5} =$ _____ |
| 5. $\frac{9}{20} =$ _____ | 6. $\frac{1}{25} =$ _____ | 7. $\frac{3}{8} =$ _____ | 8. $\frac{1}{3} =$ _____ |
| 9. $0.8 =$ _____ | 10. $0.07 =$ _____ | 11. $0.73 =$ _____ | 12. $0.19 =$ _____ |
| 13. $0.425 =$ _____ | 14. $0.625 =$ _____ | 15. $0.875 =$ _____ | 16. $0.225 =$ _____ |

Write as **fractions** in their **lowest terms**.

- | | | | |
|--------------------|-------------------------------|-------------------------------|-------------------------------|
| 17. $80\% =$ _____ | 18. $6\% =$ _____ | 19. $12\frac{1}{2}\% =$ _____ | 20. $55\% =$ _____ |
| 21. $85\% =$ _____ | 22. $37\frac{1}{2}\% =$ _____ | 23. $33\frac{1}{3}\% =$ _____ | 24. $66\frac{2}{3}\% =$ _____ |

Write as **decimal fractions**.

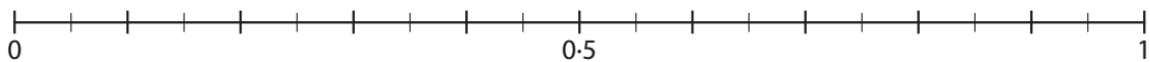
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|-------------------------------|------------------------------|---------------------|-------------------------------|
| 25. $3\% =$ _____ | 26. $68\% =$ _____ | 27. $90\% =$ _____ | 28. $87\frac{1}{2}\% =$ _____ |
| 29. $22\frac{1}{2}\% =$ _____ | 30. $8\frac{1}{2}\% =$ _____ | 31. $6.5\% =$ _____ | 32. $66.7\% =$ _____ |

4. Complete the table:

Fraction	$\frac{30}{100}$			$\frac{5}{12}$			
Percentage		9.5%			$24\frac{1}{2}\%$		$16\frac{2}{3}\%$
Decimal			0.625			0.723	

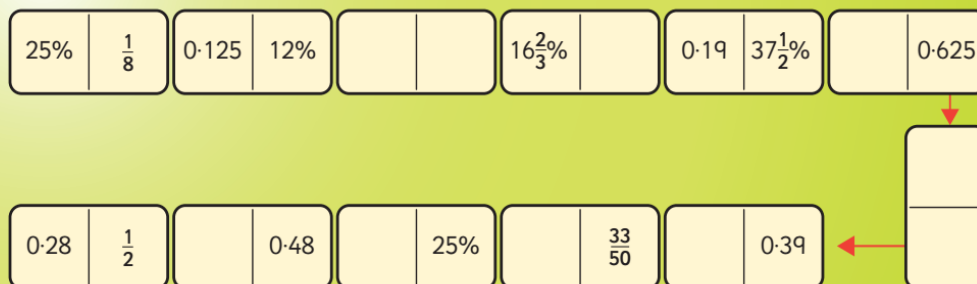
5. Write the following **fractions**, **decimals** and **percentages** on the number line.

$\frac{3}{8}$, $\frac{260}{1000}$, 77.7%, $\frac{1}{3}$, 0.050, $\frac{48}{50}$, 0.499, $\frac{9}{25}$, 14%



Challenge

Write the missing amounts on the interlinking dominoes. The order should be percentage, fraction, decimal, percentage, fraction, decimal ...



Fractions/Decimals/Percentages 1

Weather percentages.

A It was sunny for 27 days of June. What percentage was that?

$$\frac{27}{30} \times \frac{100}{1} \rightarrow \frac{270}{3} \rightarrow \frac{90}{1} = 90\%$$

B It rained for 18 days in April. What percentage was that?

$$\frac{18}{30} \times \frac{100}{1} \rightarrow \frac{180}{3} \rightarrow \frac{60}{1} = 60\%$$

1. Write each of the following as a **percentage**.

- (a) It snowed for 7 of the 28 days in February. (b) It rained for 21 days in September.
 (c) November had 9 days of sunshine. (d) June had rain on 24 days.

Expressing numbers as a **percentage** of each other. First write in **fraction** form.

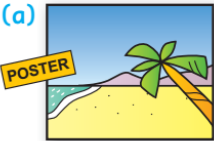
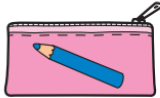



C Aaron spent €7 of his €20 going to the cinema. That means he spent $\frac{7}{20}$ of his money.

$$\frac{7}{20} \times \frac{100^5}{1} = \frac{35}{1} = 35\%$$

D Sally spent €9 of her €25 buying a dress. That means she spent $\frac{9}{25}$ of her money.



$$\frac{9}{25} \times \frac{100^4}{1} = \frac{36}{1} = 36\%$$

2. Work out what **percentage** of his €20 Aaron spent on each of the following:

- (a)  €4 (b)  €3.00 (c)  €2.60 (d)  €1.40 (e)  €0.20

(f) What percentage of his money had Aaron left after buying one of each item? _____

3. Expressing numbers as **decimals** of each other. Use your calculator to **2 decimal places**.

- (a)  Free kicks: 37
Goals scored: 6
Success rate 0.16
- (b)  Frees: 73
Points: 65
Success rate _____
- (c)  Free shots: 25
Scored: 19
Success rate _____
- (d)  Penalties: 7
Scored: 5
Success rate _____
- (e)  Pitches: 127
Strikes: 74
Success rate _____

4. Sonia had €85. She spent 60% of it buying a dress. How much money had she left? € _____

5. 87.5% of Toni's money is €54.60. How much money has she altogether? € _____

Challenge Alex spent €9, Ava spent €11 and Amy spent €17. Calculate the amount each spent as a decimal fraction of the total amount spent (to 2 decimal places).

Alex _____, Ava _____, Amy _____