Fractions, decimals and percentages

Worked solutions

KS3 Maths topic practice

This topic online

1 Write 0.7 as a fraction. (1 mark)

0.7 means 7 tenths, which is $\frac{7}{10}$

$\frac{7}{10}$

2 Write 30% as a decimal. (1 mark)

30% = 30 ÷ 100 = 0.3

0.3

3 Write 0.45 as a percentage. (1 mark)

0.45 × 100 = 45, so 0.45 = 45%

45%

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4 Complete the table. Write each fraction in its simplest form.

	Fraction	Decimal	Percentage
a	$\frac{1}{4}$		
b		0.6	
c			12%
d	$\frac{1}{20}$		

(4 marks)

a) make the bottom 100

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

0.25 and 25%

b)

$$0.6 = \frac{6}{10}$$

$$= \frac{3}{5}$$

$0.6 \times 100 = 60$

$\frac{3}{5}$ and 60%

c) per cent means out of 100

$$12\% = \frac{12}{100}$$

$$= \frac{3}{25}$$

$\frac{3}{25}$ and 0.12

d) top and bottom x 5

$$\frac{1}{20} = \frac{5}{100}$$

0.05 and 5%

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5 Write $\frac{3}{20}$ as a percentage. (1 mark)

$\frac{3}{20} = \frac{15}{100}$, multiplying top and bottom by 5

$\frac{15}{100} = 15\%$

$\boxed{15\%}$

6 Write 0.35 as a fraction. Give your fraction in its simplest form. (1 mark)

$0.35 = \frac{35}{100}$

Divide top and bottom by 5

$\frac{35}{100} = \frac{7}{20}$

$\boxed{\frac{7}{20}}$

7 Year 7 pupils were asked how they travel to school.

$\frac{2}{5}$ of the pupils walk. 0.35 of the pupils come by car. The rest come by bus.

a. What percentage of the pupils walk?

b. What percentage of the pupils come by bus?

c. Write the fraction of pupils who come by bus in its simplest form. (3 marks)

a) multiply top and bottom by 20

$\frac{2}{5} = \frac{40}{100}$

$\boxed{40\%}$

b) 0.35 = 35%, and everyone is 100%

$100 - 40 - 35 = 25$

$\boxed{25\%}$

c)

$25\% = \frac{25}{100}$

$= \frac{1}{4}$

$\boxed{\frac{1}{4}}$

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8 Write these numbers in order of size, starting with the smallest.

0.6 55% $\frac{1}{2}$

(1 mark)

Convert to decimals

$0.6 = 0.6$, $55\% = 0.55$, $\frac{1}{2} = 0.5$

In order: $\frac{1}{2}$, 55%, 0.6

$\boxed{\frac{1}{2}, 55\%, 0.6}$

9 a. Write <, > or = in each box to make the statement true.

(i) 0.3 □ $\frac{1}{3}$

(ii) 45% □ $\frac{9}{20}$

(iii) 0.07 □ 70%

b. Write = or ≠ in the box to make the statement true.

0.25 □ 2.5%

(4 marks)

a) (i)

$\frac{1}{3} = 0.333...$

$\boxed{0.3 < \frac{1}{3}}$

(ii)

$\frac{9}{20} = \frac{45}{100}$

$= 45\%$

$\boxed{45\% = \frac{9}{20}}$

(iii)

$70\% = 0.70$

$\boxed{0.07 < 70\%}$

b)

$0.25 = 25\%$

25% is not 2.5%

$\boxed{0.25 \neq 2.5\%}$

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10 Write these numbers in order of size, starting with the smallest.

$\frac{2}{5}$ 0.44 39% $\frac{1}{4}$

(2 marks)

Convert to decimals

$\frac{2}{5} = 0.4$, $0.44 = 0.44$, $39\% = 0.39$, $\frac{1}{4} = 0.25$

In order: 0.25, 0.39, 0.4, 0.44

So the order is $\frac{1}{4}$, 39%, $\frac{2}{5}$, 0.44

$\frac{1}{4}$, 39%, $\frac{2}{5}$, 0.44

11 Three friends compare their scores in a science test.

- Leah scored 17 out of 20
- Omar scored 82%
- Grace got 0.84 of the marks

Put the friends in order, starting with the highest score.

You must show your working.

(3 marks)

change them all to percentages

$\frac{17}{20} = \frac{85}{100}$

$= 85\%$

$0.84 = 84\%$

Leah 85%, Grace 84%, Omar 82%

Leah, Grace, Omar

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12 Write these numbers in order of size, starting with the smallest.

0.3 $\frac{7}{25}$ 31% $\frac{3}{8}$ 0.295

(3 marks)

change them all to decimals

$\frac{7}{25} = \frac{28}{100}$

$= 0.28$

$31\% = 0.31$

$\frac{3}{8} = 3 \times 0.125$

$= 0.375$

compare with 3 decimal places

0.300 0.280 0.310 0.375 0.295

$\frac{7}{25}$, 0.295, 0.3, 31%, $\frac{3}{8}$

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