

Percentages, Decimals, Fractions KS3KS4 Non-Calculator

NAME : _____



1. Complete the following table:

The first row has been done for you.

Fraction	Decimal	Percentage
$\frac{13}{20}$ (= $\frac{65}{100}$)	0.65	65%
$\frac{1}{4}$		
$\frac{2}{5}$		
		75%
	0.075	
$\frac{7}{25}$		
		85%
	1.75	
	0.125	
$\frac{1}{3}$		
		$66\frac{2}{3}\%$
$\frac{7}{40}$		
$\frac{37}{200}$		
		135%
$\frac{3}{8}$		



2. Write each of the following as a percentage:

(a) $0.07 =$ _____

(b) $0.37 =$ _____

(c) $0.3 =$ _____

(d) $0.125 =$ _____

(e) $0.175 =$ _____

(f) $3.4 =$ _____

3. Write each of the following as a **decimal and percentage**:

(a) $\frac{4}{5} =$ _____, _____

(b) $\frac{3}{25} =$ _____, _____

(c) $\frac{2}{3} =$ _____, _____

(d) $\frac{3}{8} =$ _____, _____

(e) $\frac{17}{40} =$ _____, _____

4. Work out the missing numbers.

(a) 40% of $80 =$ _____

(b) 40% of _____ $= 72$

(c) 75% of $60 =$ _____

(d) 30% of _____ $= 90$

(e) 12.5% of $96 =$ _____

(f) $\frac{1}{9}$ of $54 = \frac{2}{9}$ of _____

(g) 17.5% of $\pounds 480 =$ _____



5. Fill in the missing numbers.

$$(a) \frac{1}{2} \text{ of } 40 = \frac{1}{4} \text{ of } \underline{\hspace{2cm}} \quad (b) \frac{1}{2} \text{ of } 40 = \frac{1}{5} \text{ of } \underline{\hspace{2cm}}$$

$$(c) \frac{3}{4} \text{ of } 100 = \frac{1}{2} \text{ of } \underline{\hspace{2cm}} \quad (d) \frac{3}{4} \text{ of } 200 = \frac{1}{2} \text{ of } \underline{\hspace{2cm}}$$

$$(e) \frac{1}{3} \text{ of } 60 = \frac{2}{3} \text{ of } \underline{\hspace{2cm}} \quad (f) \frac{2}{3} \text{ of } 60 = \frac{2}{5} \text{ of } \underline{\hspace{2cm}}$$

6. Place the following fractions in order of size, from **Smallest to Largest**

$$(a) \quad \frac{4}{5} \quad \frac{3}{4} \quad \frac{7}{10} \quad \frac{13}{20}$$

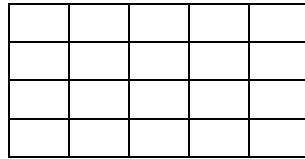
$$(b) \quad \frac{7}{15} \quad \frac{7}{12} \quad \frac{11}{30}$$

7. Complete the following

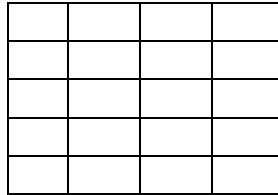
$$\frac{15}{20} = \frac{\boxed{}}{4} = \frac{75}{\boxed{}} = \frac{\boxed{}}{40} = \frac{\boxed{}}{36} = \frac{\boxed{}}{180} = \frac{45}{\boxed{}}$$



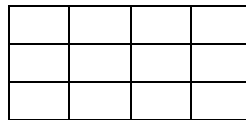
8. Shade $\frac{3}{5}$ of the grid.



9. Shade 40% of the grid.



10. Shade $33\frac{1}{3}\%$ of the grid.



11. What is $\frac{1}{4}$ of 25% of 32? _____

12. What is $\frac{1}{3}$ of $33\frac{1}{3}\%$ of 81? _____

13. What is $\frac{1}{8}$ of 12.5% of 64? _____

14. What is 25% of 25% of 320? _____

15. A shop is offering 12.5% discount on a TV that normally costs £560.

What is the discount on the TV?

£ _____

ANSWERS IN RED:

1.

Fraction	Decimal	Percentage
$\frac{13}{20} (= \frac{65}{100})$	0.65	65%
$\frac{1}{4}$	0.25	25%
$\frac{2}{5}$	0.4	40%
$\frac{3}{4}$	0.75	75%
$\frac{75}{1000} = \frac{3}{40}$	0.075	7.5%
$\frac{7}{25}$	0.28	28%
$\frac{85}{100} = \frac{17}{20}$	0.85	85%
$1\frac{3}{4} = \frac{7}{4}$	1.75	175%
$\frac{125}{1000} = \frac{1}{8}$	0.125	12.5%
$\frac{1}{3}$	0.3̄ (0.33333...)	33$\frac{1}{3}$%
$\frac{2}{3}$	0.6̄ (0.6666...)	66$\frac{2}{3}$%
$\frac{7}{40}$	0.175	17.5%
$\frac{37}{200}$	0.185	18.5%
$1\frac{35}{100} = 1\frac{7}{20}$ or $\frac{27}{20}$	1.35	135%
$\frac{3}{8}$	0.375	37.5%

See notes below on some of the above questions;

Notes: These are just suggestions of some approaches that may be used.

$$\frac{7}{40} = \frac{3.5}{20} = \frac{17.5}{100} = 0.175 = 17.5\% \quad \text{OR} \quad \frac{7}{40} = \frac{17.5}{10} = \frac{17.5}{100} = 0.175 = 17.5\%$$

(Divide top and bottom by 2 and \times by 5 **OR** Divide top and bottom by 4 and \times by 10)

$$\frac{37}{200} = \frac{18.5}{100} = 0.185 = 18.5\%$$

$$0.125 = 12.5\% \text{ which is half of } 25\% (= \frac{1}{4}) \text{ Hence, } 0.125 = \frac{1}{8}$$

$$\frac{3}{8} \text{ is } 3 \times \frac{1}{8} = 3 \times 0.125 = 0.375 = 37.5\%$$

$$\text{OR} \quad \frac{3}{8} = \frac{1.5}{4} = \frac{1.5 \times 25}{100} = \frac{37.5}{100} \quad (1.5 \times 25 = 25 + 0.5 \times 25 = 25 + 12.5)$$

2. Write each of the following as a percentage:

(a) $0.07 = 7\%$

(b) $0.37 = 37\%$

(c) $0.3 = 30\%$

(d) $0.125 = 12.5\%$

(e) $0.175 = 17.5\%$

(f) $3.4 = 340\%$

3. Write each of the following as a **decimal and percentage**:

(a) $\frac{4}{5} = (\frac{80}{100}) = 0.4, 40\%$

(b) $\frac{3}{25} = (\frac{12}{100}) = 0.12, 12\%$

(c) $\frac{2}{3} = 0.\dot{6}, 66\frac{2}{3}\%$ (based on $\frac{1}{3} = 33\frac{1}{3}$)

(d) $\frac{3}{8} = 0.375, 37.5\%$ (based on $\frac{1}{8} = 12.5\%$)

(e) $\frac{17}{40} = 0.425, 42.5\%$ (based on $\frac{17}{40} = \frac{8.5}{20} = \frac{8.5 \times 5}{100} = \frac{42.5}{100}$)

4. Work out the missing numbers.

(a) 40% of 80 = 32

(b) 40% of 180 = 72 $\left(\frac{40}{100} = \frac{2}{5} \text{ hence, } \frac{72 \times 5}{2} = 180 \right)$

(c) 75% of 60 = 45

(d) 30% of 300 = 90

(e) 12.5% of 96 = 12 (one eighth of 96 = 12)

(f) $\frac{1}{9}$ of 54 = $\frac{2}{9}$ of 27

(g) 17.5% of £480 = 60

(10% of 480 = 48, 5% of 480 = 24, 2.5% of 480 = 12,

Hence, 48 + 24 + 12 = 60)

5. Fill in the missing numbers.

(a) $\frac{1}{2}$ of 40 = $\frac{1}{4}$ of 80 (b) $\frac{1}{2}$ of 40 = $\frac{1}{5}$ of 100

(c) $\frac{3}{4}$ of 100 = $\frac{1}{2}$ of 150 (d) $\frac{3}{4}$ of 200 = $\frac{1}{2}$ of 300

(e) $\frac{1}{3}$ of 60 = $\frac{2}{3}$ of 30 (f) $\frac{2}{3}$ of 60 = $\frac{2}{5}$ of 100

6. Place the following fractions in order of size, from **Smallest to Largest**

(a) $\frac{4}{5}$ $\frac{3}{4}$ $\frac{13}{20}$ $\frac{7}{10}$

Change each one out of 20 or % 80%, 75%, 70%, 65%

Hence, $\frac{13}{20}$, $\frac{7}{10}$, $\frac{3}{4}$, $\frac{4}{5}$

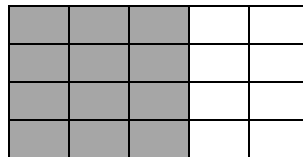
(b)

$\frac{7}{15} = \frac{28}{60}$, $\frac{7}{12} = \frac{35}{60}$, $\frac{11}{30} = \frac{22}{60}$ Hence, $\frac{11}{30}$, $\frac{7}{15}$, $\frac{7}{12}$

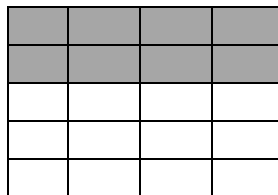
7. Complete the following

$$\frac{15}{20} = \frac{3}{4} = \frac{75}{100} = \frac{30}{40} = \frac{27}{36} = \frac{135}{180} = \frac{45}{60}$$

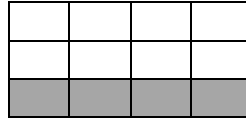
8. Shade $\frac{3}{5}$ of the grid.



9. Shade 40% of the grid.



10. Shade $33\frac{1}{3}\%$ of the grid.



11. What is $\frac{1}{4}$ of 25% of 32? **2**

12. What is $\frac{1}{3}$ of $33\frac{1}{3}\%$ of 81? **9**

13. What is $\frac{1}{8}$ of 12.5% of 64? **1**

14. What is 25% of 25% of 320? **20**

15. A shop is offering 12.5% discount on a TV that normally costs £560.

What is the discount on the TV?

One eighth of 560 = £ 70

Any methods suggested are only there to help. There are other ways of doing most questions.

I hope you find this useful and there are no errors.