

Fractions – Level Two

How to Guide - ANSWERS

Question 1

- a) What is $\frac{1}{4}$ of 80? **20**
- b) What is $\frac{1}{3}$ of 42? **14**
- c) What is $\frac{2}{3}$ of 120? **80**
- d) What is $\frac{3}{4}$ of 125.25? **93.9375**
- e) What is $\frac{1}{5}$ of 400? **80**
- f) What is $\frac{7}{8}$ of 60? **52.5**

Question 2

- a) A coat was priced at £65 but is reduced by a third in the sale. What is the new price to the nearest 10p? **£43.30**
- b) Students get $\frac{1}{4}$ off the price of a cinema ticket on Thursdays. If tickets normally cost £8.60, how much would a student pay? **£6.45**
- c) A washing machine is only $\frac{2}{3}$ of the original price in the sale. If it originally cost £180, how much would it cost now? **£120**
- d) 240 people are attending a buffet. The caterers have been told that $\frac{1}{5}$ of the people are vegetarian. How many vegetarians will there be? **48**

Question 3. Write each of these fractions in its simplest form.

a) $\frac{6}{18} = \frac{1}{3}$ b) $\frac{14}{70} = \frac{1}{5}$ c) $\frac{64}{120} = \frac{8}{15}$ d) $\frac{15}{20} = \frac{3}{4}$

Question 4

a) An employer works out that out of their 1200 employees 600 are full-time.
What fraction is that? $\frac{1}{2}$

b) A supermarket finds that out of 825 people who visit in one day 400 travelled by car. What fraction is that? $\frac{16}{33}$

c) In the audience of a concert there are 320 people aged 16-24 and 280 people aged over 24. What fraction of the audience are aged over 24? $\frac{280}{600} \rightarrow \frac{7}{15}$

320 + 280 = 600 people in total

280 is the top number

$\frac{280}{600}$ you should simplify this

Divide by 10 $\rightarrow \frac{28}{60}$ divide by 2 $\rightarrow \frac{14}{30}$ divide by 2 $\rightarrow \frac{7}{15}$

You could use other techniques to simplify.

Question 5

a) Order these from smallest to largest

$\frac{3}{4}$ $\frac{5}{9}$ $\frac{1}{3} \rightarrow \frac{1}{3}$ $\frac{5}{9}$ $\frac{3}{4}$

b) Order these in descending order

$\frac{1}{10}$ $\frac{7}{8}$ $\frac{3}{5} \rightarrow \frac{7}{8}$ $\frac{3}{5}$ $\frac{1}{10}$

Question 6

$$\text{a) } \frac{5}{9} + \frac{2}{9} = \frac{7}{9}$$

$$\text{b) } \frac{5}{6} - \frac{2}{6} = \frac{3}{6} \rightarrow \frac{1}{2}$$

$$\text{c) } \frac{2}{3} + \frac{2}{8} = \frac{22}{24} = \frac{11}{12}$$

Find a common denominator

3 and 8 both have 24 in their times tables

$$\frac{2 \times 8}{3 \times 8} = \frac{16}{24} \quad \frac{2 \times 3}{8 \times 3} = \frac{6}{24}$$

$$\frac{16}{24} + \frac{6}{24} = \frac{22}{24}$$

$$\text{d) } \frac{4}{5} - \frac{1}{4} = \frac{11}{20}$$

Find a common denominator

4 and 5 both have 20 in their times tables

$$\frac{4 \times 4}{5 \times 4} = \frac{16}{20} \quad \frac{1 \times 5}{4 \times 5} = \frac{5}{20}$$

$$\frac{16}{20} - \frac{5}{20} = \frac{11}{20}$$

Question 7

$$\text{a) Convert } \frac{16}{7} \text{ to a mixed number} = 2 \frac{2}{7}$$

$$\text{b) Convert } 3 \frac{1}{9} \text{ to an improper fraction} = \frac{28}{9}$$

$$\text{c) Convert } \frac{25}{4} \text{ to a mixed number} = 6 \frac{1}{4}$$

$$\text{d) Convert } 10 \frac{2}{3} \text{ to an improper fraction} = \frac{32}{3}$$

Mixed Questions

a) What is $\frac{3}{4}$ of 95? **71.25**

$$95 \div 4 = 23.75$$

$$23.75 \times 3 = 71.25$$

b) Find $\frac{5}{8}$ of 160 = **100**

$$160 \div 8 = 20$$

$$20 \times 5 = 100$$

c) A fridge costs £155 in store but has $\frac{1}{3}$ off the price if you buy online. What is the price of buying online to the nearest pence? **£103.33 or £103.44**

$$155 \div 3 = 51.67 \text{ (rounded to the nearest pence)}$$

$$155 - 51.67 = 103.33$$

OR

Find $\frac{2}{3}$ of the price instead

$$155 \div 3 = 51.67$$

$$51.67 \times 2 = 103.34$$

d) What is $\frac{20}{150}$ in its simplest form? $\frac{2}{15}$

divide top and bottom by 10

e) In a survey, 128 people out of 450 rated a restaurant as excellent. What fraction is this? $\frac{64}{225}$

$$\frac{128}{450} \text{ divide top and bottom by } 2 \rightarrow \frac{64}{225}$$

f) Put these fractions $\frac{1}{8}$ $\frac{3}{4}$ $\frac{7}{10}$ in order from smallest to largest :

$$\frac{1}{8} \quad \frac{7}{10} \quad \frac{3}{4}$$

A common denominator would be 40

$$\frac{1 \times 5}{8 \times 5} = \frac{5}{40} \quad \frac{3 \times 10}{4 \times 10} = \frac{30}{40} \quad \frac{7 \times 4}{10 \times 4} = \frac{28}{40} \quad \text{in order } \frac{5}{40} \quad \frac{28}{40} \quad \frac{30}{40}$$

g) What is $\frac{2}{9} + \frac{3}{4}$? $\frac{35}{36}$

A common denominator would be 36

$$\frac{2 \times 4}{9 \times 4} = \frac{8}{36} \quad \frac{3 \times 9}{4 \times 9} = \frac{27}{36}$$

$$\frac{8}{36} + \frac{27}{36} = \frac{35}{36}$$

h) What is $\frac{22}{7}$ as a mixed number? $3\frac{1}{7}$

7 goes into 22 3 whole times with 1 remainder

i) Which of these $\frac{6}{10}$ $\frac{25}{3}$ $2\frac{3}{4}$ is largest? $\frac{25}{3}$ is larger

Convert $\frac{25}{3}$ into a mixed number. 3 goes into 25 8 whole times with 1 remainder

$$8\frac{1}{3}$$

We can see that this will be bigger than the other fractions as $\frac{6}{10}$ is less than one whole

j) What is $\frac{12}{5} - \frac{1}{4}$? $\frac{43}{20}$ **or** $2\frac{3}{20}$

A common denominator would be 20

$$\frac{12 \times 4}{5 \times 4} = \frac{48}{20} \quad \frac{1 \times 5}{4 \times 5} = \frac{5}{20}$$

$$\frac{48}{20} - \frac{5}{20} = \frac{43}{20}$$

k) A college has 360 students enrolled on a course. $\frac{2}{3}$ of them are aged 18, $\frac{1}{5}$ are under 18 and the rest are over 18. How many are over 18? **48**

$$360 \div 3 = 120$$

$$120 \times 2 = 240 \text{ so } \frac{2}{3} \text{ is } 240$$

$$360 \div 5 = 72 \text{ so } \frac{1}{5} \text{ is } 72$$

$$240 + 72 = 312$$

$$\text{Find the rest } 360 - 312 = 48$$