

Session 8: Fractions

1 Calculate the following fractions and give your answers in the simplest form:

a) $1\frac{3}{5} - \frac{4}{11}$ (2 marks)

b) $4\frac{2}{3} + 5\frac{1}{2} + 4\frac{1}{5}$ (3 marks)

c) $1\frac{8}{11} - \frac{7}{15}$ (2 marks)

d) $1\frac{2}{3} - 1\frac{11}{21} + 2\frac{6}{7}$ (3 marks)

2 Show that $2\frac{3}{5} \times 3\frac{1}{2} = 9\frac{1}{10}$

(3 marks)

3 Show that $3\frac{1}{2} \div 2\frac{4}{5} = 1\frac{1}{4}$

(3 marks)

4 Show that $3\frac{2}{3} - 2\frac{1}{2} = 1\frac{1}{6}$

(3 marks)

5 Show that $1\frac{1}{4} + 2\frac{1}{5} = 3\frac{9}{20}$

(3 marks)

6 Show that $3\frac{1}{3} + 3\frac{4}{5} = 7\frac{2}{15}$

(3 marks)

7 Show that $2\frac{3}{10} \div 3\frac{1}{5} = \frac{23}{32}$

(3 marks)

8 Show that $3\frac{9}{10} - 2\frac{3}{4} = 1\frac{3}{20}$

(3 marks)

- 9** Aarav has 30 chocolates. He gives John $\frac{3}{5}$ of his chocolates.

How many does Aarav have left?

(2 marks)

- 10** Clara has 72 pencils. She gives Muhammad $\frac{7}{9}$ of her pencils.

How many pencils does Clare have left?

(2 marks)

- 11** Beth has 80 pens.

Beth gives Liam $\frac{1}{8}$ of her pens.

Beth also loses $\frac{1}{5}$ of the rest of them.

How many pens does Beth have left?

(3 marks)

- 12** Susan has 56 oranges. Susan sells Paul $\frac{3}{8}$ of her oranges for 26p each.

How much does Susan make?

(3 marks)

13 In 2008, the number of people living in a town was 1200.

By 2018, the number of people that lived in the town increased by $\frac{9}{4}$.

How many people live in the town in 2018?

(3 marks)

14 A peanut butter jar usually contains 450g of peanut butter.

A special edition jar contain $\frac{3}{10}$ more peanut butter.

How much extra peanut butter is in the special edition jar?

(3 marks)

15 There are 924 people in a cinema.

380 of the people are women.

359 of the people are men.

$\frac{3}{5}$ of the children are girls.

Work out the number of girls in the cinema.

(3 marks)

16 Louise has an income of £3000 a month.

She spends $\frac{3}{5}$ of her income on rent.

She spends $\frac{3}{20}$ of her income on utility bills.

She spends $\frac{1}{10}$ of her income on food.

Louise saves the rest of her income. Work out how much Louise saves each month.

(3 marks)

17 There are 1200 students in a school.

640 students are boys and the rest are girls.

$\frac{1}{10}$ of the girls are left handed.

$\frac{3}{8}$ of the boys are left handed.

Work out the total number of right handed students in the school.

(3 marks)

18 $\frac{6}{11}$ of the passengers on a train are male.

The rest of the passengers are female.

354 of the passengers are male.

How many of the passengers are female?

(3 marks)

19 A cube shaped flower pot has length 30 cm. A gardener fills $\frac{5}{6}$ of the pot with soil.

What is the volume of soil in the flower pot?

(3 marks)

20 Shirley bought 420 dresses to sell in her shop.

She paid £30 for each dress.

In June, she sold $\frac{5}{7}$ of the dresses.

She sold each dress at £45.

In July, she reduced the price of each dress by $\frac{1}{5}$ and sold the remaining ones at this price.

- a) Calculate the total profit that Shirley made on the dresses.
- b) Express Shirley's total profit as a fraction of the amount she paid for the dresses. Give your answer in its simplest form.

(Total 5 marks)

21 Calculate the following fractions and give your answer in its simplest form:

a) $\frac{a}{4} + \frac{3a}{7}$ (2 marks)

b) $\frac{8x}{11} - \frac{x}{2}$ (2 marks)

c) $\frac{3x}{5} \div \frac{2x}{6}$ (2 marks)

d) $\frac{5a}{8} \times \frac{2a}{7}$ (2 marks)

e) $\frac{4}{5a} + \frac{2}{a}$ (2 marks)

f) $\frac{11}{x} + \frac{5}{2x}$ (2 marks)

(Total 12 marks)

LESSON OVERVIEW:

- Converting mixed numbers into improper fractions:

add the value to the numerator

$$2 \frac{5}{9} = \frac{23}{9}$$

multiply the denominator by the number on the side

the denominator remains always the same

- Converting improper fractions into mixed numbers:

$$\frac{25}{4} = 6 \frac{1}{4}$$

remainder

the denominator remains always the same

maximum number of 4's in 25

ADDING/SUBTRACTING FRACTIONS (harder):

- Make the denominator (bottom) the same. Either using lowest common multiple (LCM) or by multiplying them.

MULTIPLYING FRACTIONS (easy):

- When multiplying fractions, multiply the numerators together (top numbers) and the denominators together (bottom numbers).

DIVIDING FRACTIONS (easy-ish):

- When dividing fractions, remember to keep the first one, change the division sign to multiplication and flip the second fractions. "STICK CHANGE FLIP". Then apply the multiplication rule.

OF/OUT OF:

- "OF" means MULTIPLY (for example: $\frac{1}{3}$ OF 27 is $\frac{1}{3} \times 27 = 9$).

- "OUT OF" means DIVIDE (for example: 15 OUT OF 20 means $\frac{15}{20}$).