

Stage (9-12)

Worksheet 1 |

1st Semester | 2023-2024

Subject: Math

Chapter: Number 1, Number 2, Number 3

Objectives:

- To review fractions, standard form, percentages, prime factors, HCF, LCM, and Ratio

Questions

Q1.

Show that $4\frac{2}{3} \div 1\frac{5}{6} = 2\frac{6}{11}$

(Total for question = 3 marks)

Q2.

Show that $6\frac{3}{4} \div 2\frac{4}{7} = 2\frac{5}{8}$

(Total for question = 3 marks)

Q3.

Sarah makes and sells mugs.

One day she makes 150 mugs.

Her total cost for making these mugs is £1140

Of these mugs

$\frac{2}{5}$ are small mugs
32% are medium mugs
and the rest are large mugs

Here is Sarah's price list for selling each mug.

MUGS	
Small	£8.50
Medium	£11.20
Large	£14.20

Sarah sells all 150 mugs.

Work out her percentage profit.

Give your answer correct to the nearest whole number.

..... %

(Total for question = 5 marks)

Q4.

Show that $5\frac{1}{3} - 2\frac{6}{7} = 2\frac{10}{21}$

(Total for question = 3 marks)

Q5.

Show that $2\frac{2}{3} + 3\frac{3}{4} = 6\frac{5}{12}$

(Total for question = 3 marks)

Q6.

Behnaz makes 300 celebration cards so that

$$\frac{\text{number of birthday cards}}{\text{number of anniversary cards}} : \frac{\text{number of anniversary cards}}{\text{number of congratulations cards}} = 7:5:3$$

$\frac{2}{5}$ of the birthday cards have numbers on them.

36% of the anniversary cards have numbers on them.

None of the congratulations cards have numbers on them.

Work out what fraction of the 300 cards have numbers on them.

Give your answer in its simplest form.

.....

(Total for question = 5 marks)

Q7.

- (a) Find the highest common factor (HCF) of 56 and 84
Show your working clearly.

.....
(2)

- (b) Find the lowest common multiple (LCM) of 60 and 72
Show your working clearly.

.....
(2)

(Total for question = 4 marks)

Q8.

- Find the lowest common multiple (LCM) of 28, 42 and 63
Show your working clearly.

(Total for question = 3 marks)

Q9.

Antoine is going on holiday.

He makes 3 separate payments to cover the total cost of his holiday.

The following table shows how much money Antoine pays to the holiday company.

Payment	Amount paid
Payment 1	$\frac{3}{8}$ of the total cost
Payment 2	45% of the total cost
Payment 3	\$406

Work out how much Antoine has to pay for Payment 2

\$.....

(Total for question = 5 marks)

Q10.

The table gives information about the average house price in England in 2018 and in 2019

Year	2017	2018	2019
Average house price (£)		228 314	231 776

(a) Work out the percentage increase in the average house price from 2018 to 2019 Give your answer correct to one decimal place.

..... %

(2)

The average house price in 2019 was 7.7% greater than the average house price in 2017

(b) Work out the average house price in 2017

Give your answer correct to 3 significant figures.

£

(3)

(Total for question = 5 marks)

Q11.

Write 1200 as a product of powers of its prime factors.
Show your working clearly.

.....

(Total for question = 3 marks)

Q12.

Danil, Gabriel and Hadley share some money in the ratios 3 : 5 : 9
The difference between the amount of money that Gabriel receives and the amount of money that Hadley receives is 196 euros.

Work out the amount of money that Danil receives.

..... euros

(Total for question = 3 marks)

Q13.

The language department of a college has 180 students.
Each student studies exactly one of French, German, Italian or Spanish.

15 students study French.
45% of the students study German.

Express the percentage of students studying Italian or Spanish as a percentage of those studying French or German.

..... %

(Total for question = 4 marks)

Q14.

$$a = 4.2 \times 10^{-24} \qquad b = 3 \times 10^{145}$$

Work out the value of $a \times b$
Give your answer in standard form.

.....

(Total for question = 2 marks)

Q15.

$$a = 6 \times 10^{40}$$

Work out the value of a^3

Give your answer in standard form.

.....

(Total for question = 3 marks)

Q16.

The table gives information about the population, correct to 2 significant figures, of each of five cities in 2018

City	Population (2018)
Ahmedabad	7.7×10^6
Barcelona	5.5×10^6
Chicago	8.8×10^6
Lagos	1.3×10^7
Tokyo	3.7×10^7

(a) Write 8.8×10^6 as an ordinary number.

.....

(1)

(b) Which of these cities had the least population in 2018?

.....
(1)

(c) Work out the difference between the population of Tokyo and the population of Ahmedabad in 2018
Give your answer in standard form correct to 2 significant figures.

.....
(2)

(Total for question = 4 marks)

Q17.

(a) Write 0.000 089 in standard form.

.....
(1)

(b) Write 8.34×10^4 as an ordinary number.

.....
(1)

(Total for question = 2 marks)