Name ANSWERS	Class

MATHS TEACHER HUB

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Fractions

(9 – 1) Topic booklet

Higher

These questions have been collated from previous years GCSE Mathematics papers.

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser.	Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- You must **show all your working out.**
- If the question is a **1H** question you are not allowed to use a calculator.
- If the question is a **2H** or a **3H** question, you may use a calculator to help you answer.

Information

- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Answer ALL questions
Write your answers in the space provided.
You must write down all the stages in your working.

1 (a) Work out $2\frac{1}{7} + 1\frac{1}{4}$

$\frac{15}{7} + \frac{5}{4}$

$\frac{60}{28} + \frac{35}{28} = \frac{95}{28} = 3\frac{11}{28}$

$3\frac{11}{28}$

(2)

(b) Work out $1\frac{1}{5} \div \frac{3}{4}$

Give your answer as a mixed number in its simplest form.

$\frac{6}{5} \div \frac{3}{4} = \frac{24}{15}$

$= 1\frac{9}{15}$

$1\frac{3}{5}$

(2)

(Total for Question 1 is 4 marks)

2 (a) Work out $3\frac{4}{5} - 1\frac{2}{3}$

$\frac{19}{5} - \frac{8}{3}$

$\frac{57}{15} - \frac{40}{15} = \frac{17}{15} = 1\frac{2}{15}$

$1\frac{2}{15}$

(2)

Kevin was asked to work out $2\frac{1}{3} \times \frac{5}{8}$

Here is his working and his answer.

$2\frac{1}{3} \times \frac{5}{8} = \frac{7}{3} \times \frac{5}{8}$ ✓

$= \frac{35}{24}$ ✓

$= 1\frac{9}{24}$ ✗

Kevin's answer is wrong.

(b) What mistake has Kevin made?

the answer should be $1\frac{11}{24}$

(1)

(Total for Question 2 is 3 marks)

2 Show that $2\frac{1}{3} \times 3\frac{3}{4} = 8\frac{3}{4}$

$= \frac{7}{3} \times \frac{15}{4}$

$= \frac{7}{1} \times \frac{5}{4}$

$= \frac{35}{4}$

$= 8\frac{3}{4}$

(Total for Question 2 is 3 marks)

2 (a) Work out $1\frac{3}{5} \div 2\frac{1}{4}$

Give your answer as a mixed number.

$\frac{8}{5} + \frac{9}{4}$

$\frac{32}{20} + \frac{45}{20} = \frac{77}{20} = 3\frac{17}{20}$

$3\frac{17}{20}$

(2)

(b) Show that $2\frac{2}{3} \div 6 = \frac{4}{9}$

$\frac{8}{3} \div \frac{6}{1}$

$\frac{8}{3} \div \frac{18}{3} = \frac{8}{18}$

$= \frac{4}{9}$

(2)

(Total for Question 2 is 4 marks)

2 Work out $7\frac{3}{8} - 2\frac{1}{2}$

Give your answer as a mixed number.

$\frac{59}{8} - \frac{5}{2}$

$\frac{59}{8} - \frac{20}{8} = \frac{39}{8}$

$= 4\frac{7}{8}$

$4\frac{7}{8}$

(Total for Question 2 is 3 marks)

3 Work out $4\frac{1}{5} - 2\frac{2}{3}$

Give your answer as a mixed number.

$\frac{21}{5} - \frac{8}{3}$

$\frac{63}{15} - \frac{40}{15} = \frac{23}{15}$

$= 1\frac{8}{15}$

$1\frac{8}{15}$

(Total for Question 3 is 3 marks)

3 The table shows some information about the dress sizes of 25 women.

Dress size	Number of women
8	2
10	9
12	8
14	6

2
11
19 ←
25

(a) Find the median dress size.

$\frac{25}{2} = 12.5$ (the 13th woman)

12

(1)

3 of the 25 women have a shoe size of 7

Zoe says that if you choose at random one of the 25 women, the probability that she has either a shoe size of 7 or a dress size of 14 is $\frac{9}{25}$ because

$$\frac{3}{25} + \frac{6}{25} = \frac{9}{25}$$

(b) Is Zoe correct?
You must give a reason for your answer.

No, it is possible for some women to have a size 7 shoe and a dress size 14.

(1)

(Total for Question 3 is 2 marks)

6 (a) Work out $2\frac{1}{4} \times 3\frac{1}{3}$

Give your answer as a mixed number in its simplest form.

$\frac{9}{4} \times \frac{10}{3} = \frac{90}{12}$

$= \frac{15}{2} = 7\frac{1}{2}$

$7\frac{1}{2}$

(3)

(b) Write the numbers 3, 4, 5 and 6 in the boxes to give the greatest possible total.
You may write each number only once.

$\boxed{5}\frac{1}{\boxed{4}} + \boxed{6}\frac{2}{\boxed{3}}$

or

$6\frac{1}{6} + 5\frac{2}{3}$

(1)

(Total for Question 6 is 4 marks)

9 Work out $3\frac{1}{2} \times 1\frac{3}{5}$

Give your answer as a mixed number in its simplest form.

$\frac{7}{2} \times \frac{8}{5} = \frac{56}{10}$

$= \frac{28}{5} = 5\frac{3}{5}$

$5\frac{3}{5}$

(Total for Question 9 is 3 marks)