

Fractions

Exam questions

Foundation and Higher tiers

Please write clearly in block capitals.

Name

Class

Teacher

Time allowed: 80 minutes

Materials

For this booklet you need a black pen, a pencil, a ruler, a rubber and a calculator for Section B.

Instructions

- Use black ink or black ballpoint pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer all questions in the spaces provided.
- **Section A** (questions 1 to 13): you must not use a calculator.
- **Section B** (questions 14 to 24): you may use a calculator.
- Do all rough work in this booklet. Cross through any work you do not want marked.

Information

- The marks for each question are shown in brackets.
- The maximum mark for this booklet is 71.

Advice

- Read each question carefully.
- In all calculations, show clearly how you work out your answer.

For teacher's use

Q	Mark	Q	Mark
1		13	
2		14	
3		15	
4		16	
5		17	
6		18	
7		19	
8		20	
9		21	
10		22	
11		23	
12		24	
TOTAL			

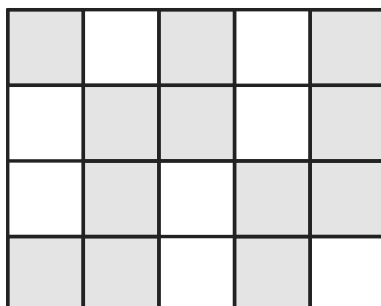
Section A



You must not use a calculator

Do not
write
outside
the box

- 1 Here is a grid of squares.



What fraction of the grid is shaded?
Give your answer in its simplest form.

Answer _____

[2 marks]

- 2 (a) Work out $\frac{3}{8}$ of 56

Answer _____

[2 marks]

- (b) $\frac{2}{5}$ of a number is 18
Work out the number.

Answer _____

[2 marks]

3 Write <, > or = in each box.

$$\frac{5}{8} \quad \square$$

0.6

$$\frac{2}{3} \quad \square$$

0.67

$$\frac{9}{12} \quad \square$$

0.75

[2 marks]

4 (a) Write $\frac{7}{8}$ as a decimal.

Answer _____

[1 mark]

(b) Write 2.15 as a mixed number in its simplest form.

Answer _____

[1 mark]

5 Work out $3\frac{1}{4} - 1\frac{5}{6}$

Give your answer as a mixed number.

Answer _____

[3 marks]

6 Kai works out $1\frac{1}{2} \times 2\frac{1}{3}$

Here is his working.

$1 \times 2 = 2$ $\frac{1}{2} \times \frac{1}{3} = \frac{1}{6}$ $\text{So } 1\frac{1}{2} \times 2\frac{1}{3} = 2\frac{1}{6}$
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(a) Explain the mistake Kai has made.

[1 mark]

(b) Work out the correct answer.

Answer _____

[2 marks]

7 A jug holds $2\frac{1}{4}$ litres of lemonade.

Each glass holds $\frac{3}{10}$ of a litre.

(a) How many glasses can be filled completely from the jug?

Answer _____

[3 marks]

(b) How much lemonade is left in the jug?
Give your answer as a fraction of a litre.

Answer _____ litre

[1 mark]

- 8 A charity shop is given a donation of books.

$\frac{1}{4}$ of the books are for children.

$\frac{2}{5}$ of the rest of the books are novels.

The other 540 books are non-fiction.

Work out the number of books in the donation.

Answer _____

[4 marks]

- 9 Work out the fraction that is exactly halfway between $\frac{2}{5}$ and $\frac{3}{4}$

Answer _____

[2 marks]

- 10 Tom says,
“ $\frac{21}{28}$ cannot be written as a terminating decimal because 28 has a factor of 7”

Is Tom correct?

Give a reason for your answer.

[2 marks]

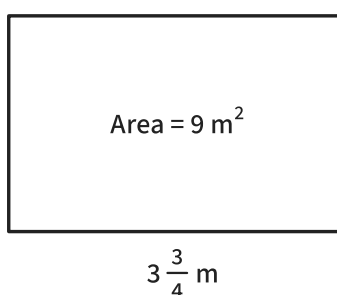
11 $\frac{1}{4} + \frac{1}{n} = \frac{11}{36}$

Work out the value of n .

$n =$ _____

[2 marks]

- 12** The diagram shows a rectangle.



Not drawn accurately

Work out the width of the rectangle.
Give your answer as a mixed number.

Answer _____ m

[3 marks]

13 Show that $0.1\dot{5} = \frac{7}{45}$

[3 marks]

Section B



You may use a calculator

Do not
write
outside
the box

- 14** A school weather station records the total rainfall over each calendar year, in millimetres.
Last year the total rainfall was 735 mm.
This year the total rainfall was 945 mm.

- (a) Write this year's rainfall as a fraction of last year's rainfall.
Give your answer in its simplest form.

Answer _____

[2 marks]

- (b) This year, 63 mm of the rainfall was in July.
What fraction of this year's rainfall was in July?
Give your answer in its simplest form.

Answer _____

[1 mark]

- 15** Here are three fractions.

$$\frac{11}{18} \quad \frac{17}{29} \quad \frac{23}{38}$$

Which fraction is closest to 0.6?
You must show your working.

Answer _____

[2 marks]

- 16** Charlotte says,
 “ $\frac{5}{12}$ of £86.40 is more than $\frac{3}{7}$ of £84.35”

Is Charlotte correct?

You must show your working.

[3 marks]

- 17** Nadia works $37\frac{1}{2}$ hours each week.
 She spends $\frac{2}{15}$ of this time in meetings.
 She spends $\frac{3}{10}$ of this time on phone calls.
 She spends the rest of the time on other work.

How long does Nadia spend on other work each week?

Give your answer in hours and minutes.

Answer _____

[3 marks]

- 18** The fuel tank of a van holds 54 litres when it is full.
The fuel gauge shows that the tank is $\frac{3}{8}$ full.
Fuel costs 147.9p per litre.

Work out the cost of filling the tank.
Give your answer to the nearest penny.

Answer £ _____

[3 marks]

- 19** A rectangular lawn is $12\frac{3}{4}$ m long and $8\frac{2}{5}$ m wide.
Turf costs £4.85 for each square metre.
Ravi can only buy a whole number of square metres of turf.

Work out the least it will cost Ravi to buy enough turf to cover the lawn.

Answer £ _____

[4 marks]

- 20** Write a mixed number in each box to make the calculation correct.

(a) $2\frac{3}{5} \times \boxed{} = 9\frac{1}{10}$

[2 marks]

(b) $\boxed{} \div 1\frac{2}{3} = 4\frac{3}{10}$

[2 marks]

- 21** A water tank holds 2340 litres when it is full.

The tank is $\frac{5}{9}$ full.

$\frac{3}{8}$ of the water in the tank is then used.

How many more litres of water are needed to fill the tank?

Answer _____ litres

[4 marks]

- 22** Mia spends $\frac{3}{8}$ of her savings on a festival ticket.
She then spends £46.35 on a tent.
She now has $\frac{2}{5}$ of her savings left.

Work out how much Mia had in her savings at the start.

Answer £ _____

[4 marks]

- 23** In January the price of a bike is £374.40
In March the price goes up by $\frac{1}{6}$
In May the March price goes down by $\frac{1}{5}$

Joel says,
“The bike costs less in May than it did in January.”
Is Joel correct?
You must show your working.

[3 marks]

- 24** Write down a fraction with denominator 23 that is greater than $\frac{2}{7}$ and less than 0.31
You must show your working.

Answer _____

[2 marks]

END OF QUESTIONS