1.4 Fractions

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2 (a) Write 64% as a fraction.

Give your fraction in its simplest form.

.....

(2)

(c) Work out $\frac{1}{6}$ of 84 kg.

..... kg

(1)

9 Sophie makes 160 cupcakes for a charity cake stall.

30% of the cupcakes are chocolate.

$\frac{3}{8}$ of the cupcakes are lemon.

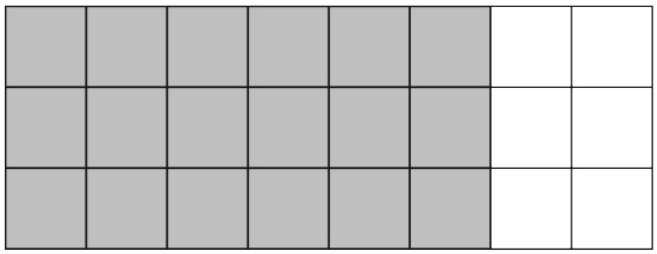
The rest of the cupcakes are blueberry.

Work out the number of blueberry cupcakes Sophie makes.

.....

(Total for Question 9 is 4 marks)

1 Here is a shape made from squares.



(a) What fraction of this shape is shaded?
Give your fraction in its simplest form.

.....

(2)

$\frac{3}{10}$ of a triangle is shaded.

(b) What fraction of the triangle is **not** shaded?

.....

(1)

2 The pictogram shows information about the number of televisions sold from a shop on each of five days.

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	

On Saturday, the shop had a sale.

The prices of all televisions were reduced by $\frac{1}{3}$

Before the sale, the price of a television was £549

(c) What was the sale price of this television?

£ .....

(3)

14 (a) Write these fractions in order of size.
Start with the smallest fraction.

$$\frac{5}{12} \qquad \frac{7}{8} \qquad \frac{3}{4} \qquad \frac{1}{2} \qquad \frac{9}{24}$$

.....

(2)

(b) Show that $\frac{2}{7} \div \frac{4}{5} = \frac{5}{14}$

(2)

(c) Show that $3\frac{1}{6} - 1\frac{2}{3} = 1\frac{1}{2}$

(3)

14 In Jordan, the total cost of 2.5 kg of potatoes and 3 kg of onions is 3.55 dinars.

The cost of $\frac{1}{2}$ kg of onions is 0.30 dinars.

Work out the cost, in Jordan, of 1 kg of potatoes.

..... dinars

21 Ahmed bought one box of lemons.
The box of lemons cost \$4
There were 24 lemons in the box.

Ahmed sold $\frac{3}{4}$ of all the lemons he bought for 30 cents each.

He then sold the rest of the lemons for 20 cents each.

Calculate the percentage profit that Ahmed made.

Use \$1 = 100 cents.

.....%

(Total for Question 21 is 4 marks)

January 2018 1FR

23 There are 320 students at a school.

$\frac{5}{8}$ of these students are girls.

$\frac{3}{4}$ of the girls have blue eyes.

$\frac{2}{3}$ of the boys have blue eyes.

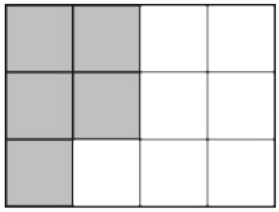
What fraction of the students at the school have blue eyes?

.....

(Total for Question 23 is 4 marks)

January 2018 2FR

6 Here is a shape made of squares.



(a) Write down the fraction of the shape that is shaded.

.....

(1)

1

(b) Write $\frac{48}{60}$ as a fraction in its simplest form.

(1)

(c) Write $\frac{17}{3}$ as a mixed number.

(1)

There are 840 tickets available for a concert.

$\frac{1}{7}$ of these tickets have **not** been sold.

(d) How many of the tickets have been sold?

(2)

20 Show that $3\frac{4}{7} - 1\frac{5}{8} = 1\frac{53}{56}$

(Total for Question 20 is 3 marks)

13 Show that $\frac{7}{8} - \frac{1}{6} = \frac{17}{24}$

(Total for Question 13 is 2 marks)

2

(1)

(b) Write $\frac{77}{9}$ as a mixed number.

.....

(1)

(c) Write $\frac{35}{45}$ as a fraction in its simplest form.

.....

(1)

18 Behnaz makes candles.

She has 6.3 kilograms of wax and uses it all to make candles.
Each candle Behnaz makes uses 210 grams of wax.

Behnaz sells $\frac{2}{5}$ of the candles for \$13 each.

She then reduces this price by 20% and sells the rest of the candles.

Work out the total amount of money Behnaz gets by selling all the candles she made.

\$.....

(Total for Question 18 is 4 marks)

January 2019 1F

1

(f) Work out $\frac{4}{5}$ of 185

(2)

January 2019 1F

11 Benson was on holiday in Kenya for 70 days.

He was in Nairobi for $\frac{2}{7}$ of this holiday.

He was in Mombasa for $\frac{1}{5}$ of this holiday.

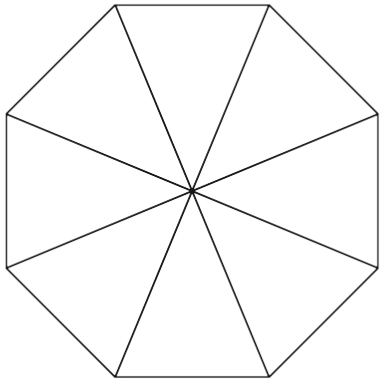
He was in Kisumu for $\frac{4}{9}$ of the **rest** of this holiday.

For what fraction of this holiday was Benson in Kisumu?

(Total for Question 11 is 4 marks)

1

(d) Shade 75% of this diagram.



(1)

8 (a) Write $\frac{19}{5}$ as a mixed number.

(1)

There are 84 animals in a field.

10 of the animals are horses.
45 of the animals are sheep.
The rest of the animals are cows.

(b) What fraction of the animals in the field are cows?

(2)

(c) Write these fractions in order of size.
Start with the smallest fraction.

$\frac{3}{4}$ $\quad$ $\frac{11}{12}$ $\quad$ $\frac{5}{8}$ $\quad$ $\frac{9}{20}$

(2)

(d) Show that $\frac{23}{24} - \frac{3}{8} = \frac{7}{12}$

(2)

January 2019 1FR

2 (a) Write these fractions in order of size.
Start with the smallest fraction.

$$\frac{1}{6} \quad \frac{1}{10} \quad \frac{3}{4} \quad \frac{1}{2}$$

(1)

(d) Work out $1 - \frac{5}{8}$

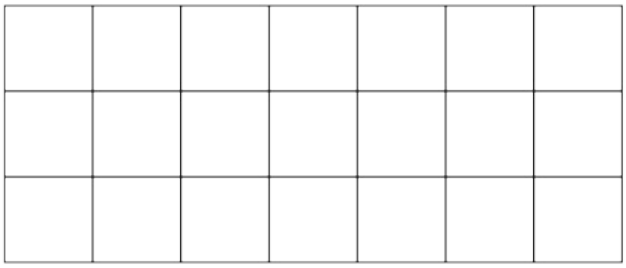
(1)

January 2019 1FR

16 Show that $1\frac{2}{3} + 2\frac{3}{4} = 4\frac{5}{12}$

(Total for Question 16 is 3 marks)

3 (a) Shade $\frac{3}{7}$ of the rectangle.



(1)

(b) Write $\frac{23}{3}$ as a mixed number.

(1)

(c) Find $\frac{2}{5}$ of 60 cm.

cm

(2)

Claude says that $\frac{1}{6}$ is exactly halfway between $\frac{1}{4}$ and $\frac{1}{8}$

(d) Is Claude correct?
You must give a reason for your answer.

(2)

5 There are 12 481 people at a concert.
8906 of these people are adults.
The rest of the people are children.

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

Work out the number of girls at the concert.

.....

(Total for Question 5 is 4 marks)

9 (a) Write these fractions in order of size.
Start with the smallest fraction.

$$\frac{7}{10} \qquad \frac{4}{5} \qquad \frac{1}{2} \qquad \frac{29}{40}$$

.....

(2)

(b) Show that $\frac{8}{15} + \frac{3}{10} = \frac{5}{6}$

(2)

(c) Show that $4\frac{2}{3} \div 1\frac{1}{9} = 4\frac{1}{5}$

(3)

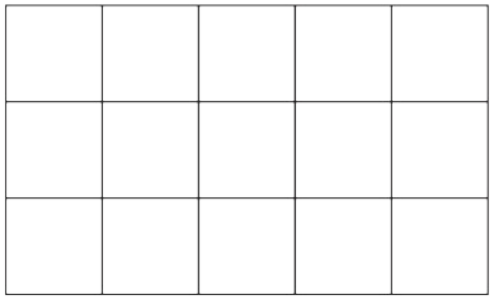
5 (a) Which one of these fractions is equivalent to $\frac{4}{5}$?

$\frac{20}{24}$ $\frac{8}{12}$ $\frac{1}{2}$ $\frac{16}{20}$ $\frac{6}{10}$

.....

(1)

Here is a shape made of squares.



(b) Shade $\frac{4}{5}$ of the shape.

(1)

(c) Write $\frac{4}{5}$ as a percentage.

..... %

(1)

$\frac{4}{5}$ of a number is 48

(d) What is the number?

.....

(2)

18 Show that $5\frac{2}{3} - 2\frac{3}{4} = 2\frac{11}{12}$

(Total for Question 18 is 3 marks)

6

(b) Write $\frac{34}{10}$ as a mixed number in its simplest form.

.....

(2)

(c) Show that $\frac{3}{4} \div \frac{15}{16} = \frac{4}{5}$

(2)

9 Kamal sells 240 ice creams for a total of $640

$\frac{1}{3}$ of the ice creams he sells are large.

The cost of each large ice cream he sells is $3.80

All the other ice creams he sells are small.
He sells each small ice cream for the same cost.

Work out the cost of each small ice cream.

$.....

19 Show that $4\frac{2}{3} + 3\frac{4}{5} = 8\frac{7}{15}$

(Total for Question 19 is 3 marks)

12 Greg bought 36 oranges.
He paid 50p for each orange.

Greg sold $\frac{1}{2}$ of the oranges for 60p each.

He sold $\frac{1}{3}$ of the oranges for 40p each.

He sold the remainder of the oranges for 25p each.

Work out Greg's percentage loss.

.....%

(Total for Question 12 is 5 marks)

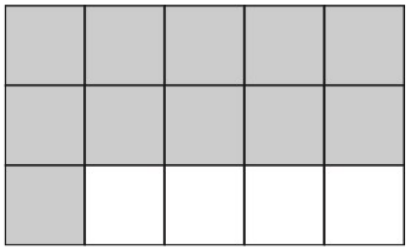
January 2020 1FR

15 Show that $3\frac{1}{5} \times 2\frac{5}{8} = 8\frac{2}{5}$

(Total for Question 15 is 3 marks)

January 2020 2FR

4 Here is a shape made from squares.



(a) What fraction of this shape is shaded?

.....

(1)

(b) Write $\frac{23}{5}$ as a mixed number.

.....

(1)

14 Iona buys a box of cereal.

The cereal in the box weighs 0.75 kg.
Each helping of the cereal eaten by Iona has a weight of 40 g.

(a) Write 40 g as a fraction of 0.75 kg.
Give your answer in its simplest form.

.....

(2)

The cereal in the box contains 6.8 g of protein for each 100 g of cereal.

(b) Work out the amount of protein in each of Iona's helpings of cereal.

..... g

(2)

6 (a) Write $\frac{24}{40}$ as a fraction in its simplest form.

.....

(2)

There are only blue bricks and white bricks in a box.
The ratio of the number of blue bricks to the number of white bricks is 3 : 7

(c) What fraction of the bricks in the box are blue bricks?

.....

(1)

(d) Show that $\frac{3}{8} + \frac{1}{24} = \frac{5}{12}$

(2)

June 2020 2F

15 Show that $\frac{2}{5} \div \frac{11}{20} = \frac{8}{11}$

(Total for Question 15 is 2 marks)

January 2021 1F

4

(c) Write $\frac{72}{84}$ as a fraction in its simplest form.

.....

(1)

(d) Write $\frac{22}{5}$ as a mixed number.

.....

(1)

(e) Work out $\frac{1}{8}$ of 624

.....

(1)

16 Show that $\frac{5}{6} - \frac{3}{8} = \frac{11}{24}$

(Total for Question 16 is 2 marks)

24 The people working for a company work in Team A or in Team B.

number of people in Team A : number of people in Team B = 3 : 4

$\frac{4}{5}$ of Team A work full time.

24% of Team B work full time.

Work out what fraction of the people working for the company work full time.
Give your fraction in its simplest form.

(Total for Question 24 is 3 marks)

6 Here is a shape made of squares.

(a) Shade $\frac{3}{5}$ of the shape.

(1)

(b) Write $\frac{36}{120}$ as a fraction in its simplest form.

.....

(1)

(c) Write these fractions in order of size.
Start with the smallest fraction.

$$\frac{3}{4} \qquad \frac{5}{6} \qquad \frac{1}{2} \qquad \frac{4}{5}$$

.....

(2)

$\frac{5}{9}$ of a number is 14

(d) What is the number?

.....

(2)

January 2021 1FR

16 Show that $3\frac{1}{5} \times 1\frac{5}{6} = 5\frac{13}{15}$

(Total for Question 16 is 3 marks)

June 2021 1F

10 (a) Write these fractions in order of size.
Start with the smallest fraction.

$$\frac{3}{8} \qquad \frac{1}{4} \qquad \frac{7}{20} \qquad \frac{5}{16}$$

.....

(2)

There are only green beads and red beads in a bag.

The ratio of the number of green beads to the number of red beads is 5 : 9

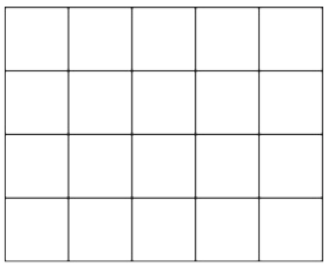
(b) What fraction of the beads in the bag are green beads?

.....

(1)

June 2021 2F

5 Here is a shape made of squares.



(a) Shade $\frac{3}{5}$ of the shape.

(1)

(b) Which one of these fractions is **not** equivalent to $\frac{4}{7}$?

$\frac{40}{70}$ $\frac{8}{14}$ $\frac{400}{700}$ $\frac{14}{17}$ $\frac{20}{35}$

.....

(1)

(d) Write $\frac{77}{9}$ as a mixed number.

.....

(1)

$\frac{5}{6}$ of a number is 40

(e) What is the number?

.....

(2)

June 2021 2F

16 Show that $2\frac{4}{7} \div 1\frac{1}{8} = 2\frac{2}{7}$

(Total for Question 16 is 3 marks)

1 Here are five fractions.

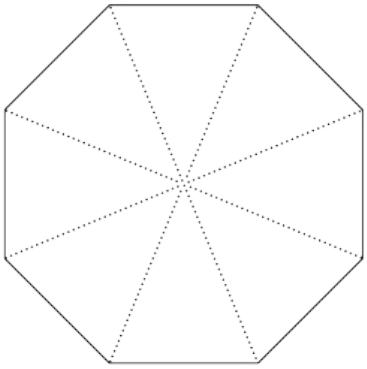
$\frac{2}{8}$	$\frac{3}{9}$	$\frac{5}{25}$	$\frac{7}{28}$	$\frac{8}{40}$

Two of the fractions in the table are equivalent to $\frac{1}{5}$

(a) Put a tick (✓) in the box underneath each of these two fractions.

(2)

The diagram shows an 8-sided polygon and its diagonals.



(b) Write down the mathematical name of an 8-sided polygon.

.....

(1)

(c) Shade $\frac{3}{4}$ of the polygon shown in the diagram above.

(1)

The area of a polygon is 56 cm^2

(d) Find $\frac{3}{4}$ of 56

.....

(2)

November 2021 1F

10 (a) Show that $\frac{3}{10} \div \frac{1}{4} = \frac{6}{5}$

(2)

(b) Show that $\frac{5}{6} - \frac{3}{4} = \frac{1}{12}$

(2)

November 2021 2F

10 (a) Write 25 as a fraction of 145
Give your fraction in its simplest form.

.....

(2)

9

There are 30 dogs staying in some boarding kennels.
12 of the dogs are brown.

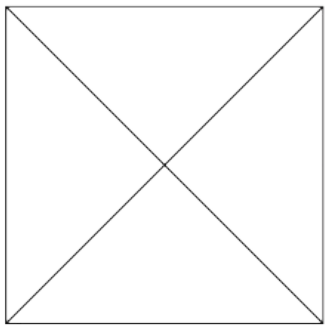
(b) What fraction of the dogs in the boarding kennels are **not** brown?
Give your fraction in its simplest form.

(2)

(c) Show that $\frac{4}{9} + \frac{1}{6} = \frac{11}{18}$

(2)

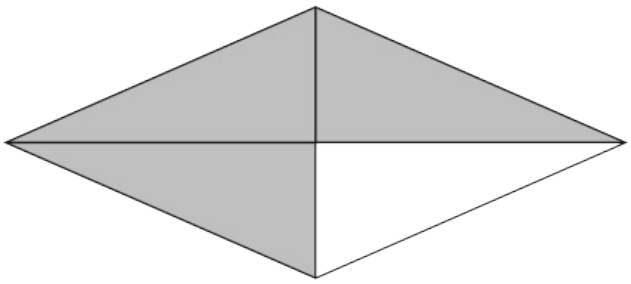
1 The diagram shows a square and its diagonals.



(a) Shade $\frac{1}{4}$ of the square.

(1)

Here is a rhombus.



(b) What fraction of the rhombus is shaded?

.....

(1)

7 $\frac{3}{8}$ of the members of a squash club are children.

$\frac{5}{6}$ of these children are right-handed.

What fraction of the members of the squash club are right-handed children?
Give your answer as a fraction in its simplest form.
Show your working clearly.

(Total for Question 7 is 3 marks)

January 2022 2F

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

(Total for Question 17 is 3 marks)

January 2022 1FR

6

(c) Write 30 as a fraction of 48
Give your fraction in its simplest form.

(2)

5 (a) Work out $\frac{4}{5}$ of 80

.....

(1)

(d) Write $\frac{11}{4}$ as a mixed number in its simplest form.

.....

(1)

16 (a) Show that $\frac{3}{8} \div \frac{27}{32} = \frac{4}{9}$

(2)

(b) Show that $\frac{5}{6} - \frac{3}{8} = \frac{11}{24}$

(2)

1

There are 400 cars in a car park.

$\frac{3}{10}$ of the cars are grey.

(f) Work out how many of the cars in the car park are **not** grey.

.....

(2)

8 Mairi has 200 flowers.

Of these flowers

37 are white
25 are yellow
42 are pink

The rest of the flowers are red.

Express the number of red flowers as a fraction of the total number of flowers.
Give your fraction in its simplest form.

.....

(Total for Question 8 is 3 marks)

June 2022 2F

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

(Total for Question 20 is 3 marks)

June 2022 1FR

4

(b) Write a number in the box so that the following statement is correct.

$\frac{3}{4}$ and $\frac{\square}{20}$ are equivalent fractions.

(1)

(c) Work out $\frac{3}{5}$ of 35

(2)

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

(Total for Question 22 is 3 marks)

6 Sandeep sells 600 tickets for an event.
He receives a total of \$7200 from selling the tickets.

$\frac{1}{4}$ of the tickets sold are child tickets.

The rest of the tickets sold are adult tickets.

The cost of an adult ticket is \$13.60

Work out the cost of a child ticket.

\$ .....

(Total for Question 6 is 4 marks)

January 2023 1F

12 (a) Show that $\frac{7}{8} - \frac{5}{12} = \frac{11}{24}$

January 2023 2F

(2)

16 Show that $3\frac{5}{7} \div 1\frac{5}{8} = 2\frac{2}{7}$

(Total for Question 16 is 3 marks)

January 2023 1FR

7

(c) Write $\frac{31}{9}$ as a mixed number.

.....

(1)

January 2023 2FR

11 Asif has 200 beads.

Asif gives $\frac{1}{4}$ of the 200 beads to Bernadette.

Asif gives $\frac{2}{5}$ of the 200 beads to Claudio.

Asif gives 43 beads to Derek.

What fraction of the 200 beads does Asif have left?

.....

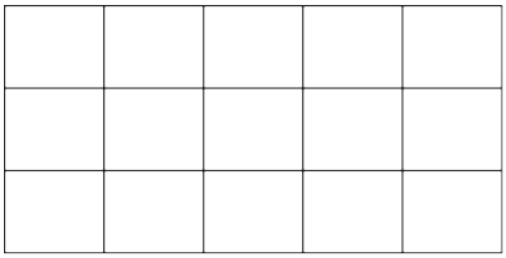
(Total for Question 11 is 4 marks)

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

(Total for Question 15 is 3 marks)

June 2023 1F

1 (a) Shade $\frac{4}{5}$ of this shape.



(1)

(b) Write $\frac{27}{36}$ as a fraction in its simplest form.

.....

(1)

June 2023 2F

8 A hall has 26 rows of seats.
There are 14 seats in each row.

Annie sells tickets for $\frac{3}{4}$ of the seats in the hall for a concert.

She sells each ticket for 15 euros.

Work out the total amount Annie gets from selling tickets.

..... euros

(Total for Question 8 is 3 marks)

June 2023 2F

17 Show that $4\frac{2}{3} \div 1\frac{1}{5} = 3\frac{8}{9}$

(Total for Question 17 is 3 marks)

June 2023 2FR

5 Here is a list of fractions.

$$\frac{4}{5} \qquad \frac{3}{8} \qquad \frac{2}{3} \qquad \frac{12}{15} \qquad \frac{7}{10}$$

One fraction from the list, when written as a decimal, is **not** a terminating decimal.

(a) Write down this fraction.

.....

(1)

Two fractions from the list are equivalent.

(b) Write down these two fractions.

..... and .....

(1)

5 Here is a shape made of squares.

(a) Shade $\frac{2}{3}$ of the shape.

(1)

(c) Write $\frac{48}{150}$ as a fraction in its simplest form.

.....

(1)

(d) Write $\frac{46}{7}$ as a mixed number.

.....

(1)

22 Show that $3\frac{3}{7} \div 2\frac{2}{3} = 1\frac{2}{7}$

(Total for Question 22 is 3 marks)