Each diagram below is divided into equal sections.

Shade three-quarters of each diagram.

2 marks
Here are 21 apples.

Put a ring around one third of them.

1 mark
3 A line starts at A and goes along the dotted lines to B.

It divides the area of the grid into halves.

4 Divide the area of the grid below into halves. Start at A and go along the dotted lines to B.

What fraction of these tiles are circled?

1 mark
Tick (✔) the two shapes that have three-quarters shaded.

1 mark
Here is a rectangle with 13 identical shaded squares inside it.

What fraction of the rectangle is shaded?

1 mark

Shade more rectangles so that exactly half of the shape is shaded.

1 mark

Shade more rectangles so that exactly half of the shape is shaded.
The diagram is made of squares.

What fraction of the diagram is shaded?

Shade one third of this shape.

Shade one quarter of this shape.
10 Shade \( \frac{1}{4} \) of this shape.

\[
\begin{array}{c}
\text{Diagram}
\end{array}
\]

1 mark

11 This diagram shows four regular hexagons.
Shade in one third of the diagram.

\[
\begin{array}{c}
\text{Diagram}
\end{array}
\]

1 mark

12 \( \frac{1}{3} \) of this square is shaded.

\[
\begin{array}{c}
\text{Diagram}
\end{array}
\]

1 mark
The same square is used in the diagrams below.

What fraction of this diagram is shaded?

What fraction of this diagram is shaded?
Here is a square.

What fraction of the square is shaded?

Here are five diagrams.
Look at each one.
Put a tick (✔) on the diagram if exactly half of it is shaded.
Put a cross (✘) if it is not.

2 marks
The diagram shows three regular octagons joined together. 

There is a dot at the centre of each octagon.

What fraction of the diagram is shaded?

A fraction of each shape is shaded.

Match each fraction to the correct place on the number line.

One has been done for you.
These diagrams are all made of squares. Look at each diagram. Put a tick (✓) if exactly $\frac{1}{3}$ of it is shaded. Put a cross (✗) if it is not.

![Diagrams]

This diagram shows a shaded rectangle surrounded by squares. What fraction of the diagram is shaded?

![Diagram]

1 mark
Holly says,

‘One-third of this shape is shaded’.

Is Holly correct?
Circle Yes or No.

Yes / No

Explain how you know.
Here are some shapes made of squares.

A fraction of each shape is shaded.

Match each shape to its equivalent fraction.

One has been done for you.

\[
\begin{array}{c}
\text{\includegraphics{shape1.png}} & \frac{7}{10} \\
\text{\includegraphics{shape2.png}} & \frac{3}{5} \\
\text{\includegraphics{shape3.png}} & \frac{1}{2} \\
\text{\includegraphics{shape4.png}} & \frac{4}{5} \\
\text{\includegraphics{shape5.png}} & \frac{3}{10}
\end{array}
\]
21 Shade $\frac{1}{4}$ of this shape.

Here are three shapes made from regular hexagons. Write the fraction of each shape that is shaded.

22 Here are three shapes made from regular hexagons. Write the fraction of each shape that is shaded.
23

Tick (✓) each shape that is exactly $\frac{1}{4}$ shaded.

24

Shade $\frac{1}{5}$ of this shape.
Shade more triangles on this shape so that is $\frac{1}{3}$ shaded

Each of these diagrams is divided into equal parts. Some of the parts are shaded.

A B C

D E
Write the letters of all the diagrams that have exactly \( \frac{1}{2} \) shaded.

_________________________  1 mark

Which of the diagrams has exactly \( \frac{1}{3} \) shaded?

1 mark
Mark schemes

1. Award TWO marks for all three diagrams completed to show three-quarters shaded, e.g.

If the answer is incorrect, award ONE mark for two diagrams correct.

Accept alternative unambiguous indications of parts shaded.

Up to 2m

2. Ring drawn enclosing 7 apples.

Accept any other clear way of indicating 7 apples.

3. Any line that partitions the grid into two blocks of 12 squares, eg:

Line must run from A to B. Line must be on dotted grid lines only.

Do not accept lines along the edge of the grid.

4
5. ✓'s on shapes a and b.

If extra shapes are ticked, do not award the mark unless the child clearly indicates which are his or her final selection.

6. \[ \frac{13}{35} \]

7. Any four rectangles shaded in addition to two already shaded

8. \[ \frac{5}{9} \]
Accept equivalent fractions.

9. (a) Equivalent of 2 squares shaded, eg

Accept part squares shaded as long as the intention is clear.
(b) Equivalent of 2 squares shaded, eg

Accept part squares shaded as long as the intention is clear.
Accept inaccuracies in shading providing the intention is clear.

Any two of the eight triangles shaded, eg

Accept any other unambiguous indication of the correct fraction, such as four half-triangles shaded.

Equivalent of one third of each hexagon shaded, or a total of 1 \( \frac{1}{3} \) hexagons shaded, eg

Accept part shapes shaded as long as the intention is clear.
Accept inaccuracies in shading provided the intention is clear.

Accept equivalent fractions or decimals.
(b) \( \frac{1}{9} \)

Accept equivalent fractions or decimals.

U1

\[ \text{OR} \]

Accept equivalent fractions.

13

\( \frac{1}{4} \text{ OR } \frac{2}{8} \)

Accept equivalent fractions.

14

Award TWO marks for diagrams ticked or crossed as shown:

If the answer is incorrect, award ONE mark for four diagrams ticked or crossed correctly.

Accept alternative unambiguous indications such as Y or N.

For TWO marks accept:

Up to 2
15 \[ \frac{1}{6} \]

Accept: equivalent fractions, eg \( \frac{4}{24} \)

16

Diagram completed correctly as shown:

Do not award the mark if additional incorrect lines are drawn. Lines need not touch the shapes or number line provided the intended accuracy is clear.
Award TWO marks for diagrams ticked or crossed as shown:

Accept alternative unambiguous indications, eg Y or N.

For TWO marks, accept:

If the answer is incorrect, award ONE mark for three diagrams ticked or crossed correctly.

18 \[
\frac{1}{5}
\]

Accept equivalent fractions, eg \[
\frac{3}{15}
\]

Accept 0.2 OR 20%
An explanation which recognises that the shaded area is equivalent to one-third, eg:

- \( \frac{2}{6} \) is shaded and that is equivalent to \( \frac{1}{3} \).
- ‘2 out of 6 is the same as 1 out of 3’
- ‘2 out of 6’
- \( \frac{2}{6} \) is shaded and \( \frac{4}{6} \) is not shaded, which is the same as \( \frac{1}{3} \) shaded and \( \frac{2}{3} \) not shaded’
- ‘There are 3 squares, and 2 halves are shaded, and 2 halves make one whole’
- ‘The two shaded triangles are the same as one square and that is one out of three squares’
- ‘1 square out of 3’
- ‘If you add the shaded parts together it makes one square’

No mark is awarded for circling ‘Yes’ alone.

Do not accept vague or incomplete explanations, eg:

- ‘It’s equivalent to \( \frac{1}{3} \).’
- \( \frac{1}{3} \) is shaded and \( \frac{2}{3} \) is not shaded’
- ‘The two parts shaded add up to \( \frac{1}{3} \).’
- ‘Half of 2 squares are shaded’.

If ‘No’ is circled but a correct, unambiguous explanation is given, then award the mark.
Award **TWO** marks for four shapes matched correctly as shown:

![Diagram showing shapes and fractions](image)

If the answer is incorrect, award **ONE** mark for three shapes matched correctly.

*Lines need not touch shapes or fraction boxes, provided the intention is clear.*

**Do not** credit any shape that has been matched to more than one fraction.

Up to **2**

Diagram completed to show three triangles shaded, or equivalent, eg

![Diagram of shaded triangles](image)

*Accept inaccurate shading provided the intention is clear.*
Award **TWO** marks for three fractions correct as shown:

\[
\frac{1}{4}
\]

AND

\[
\frac{1}{2}
\]

AND

\[
\frac{1}{3}
\]

If the answer is incorrect, award **ONE** mark for two fractions correct.

*Accept equivalent fractions, eg*

\[
\frac{3}{6} \text{ for } \frac{1}{2}
\]

\[
\frac{2}{6} \text{ for } \frac{1}{3}
\]

Diagram ticked correctly as shown:

Accept alternative unambiguous indications.
(a) Any two triangles in the shape shaded.
   
   Accept alternative unambiguous indications.

(b) Any two more triangles in the shape shaded.

   Accept alternative unambiguous indications.

---

(a) C AND E

   Letters may be given in either order.

(b) B