testbase

Yr 3, 4, 5 Fraction Questions
Fraction Extension Task

Name: _____

Class: _____

Date: _____

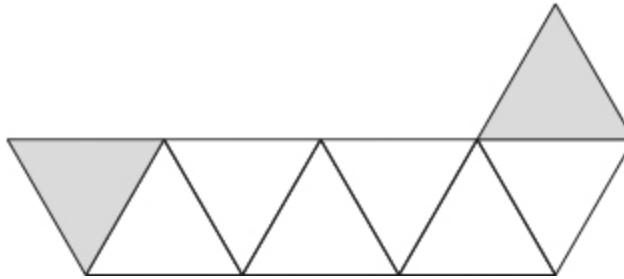Time: **103 minutes**

Marks: **103 marks**

Comments:

1. Sarah wants to shade $\frac{3}{4}$ of this shape.

She has shaded **2** triangles.

How many **more** triangles must she shade so that $\frac{3}{4}$ is shaded?

1 mark

2. Sarah has a bag of 24 marbles.
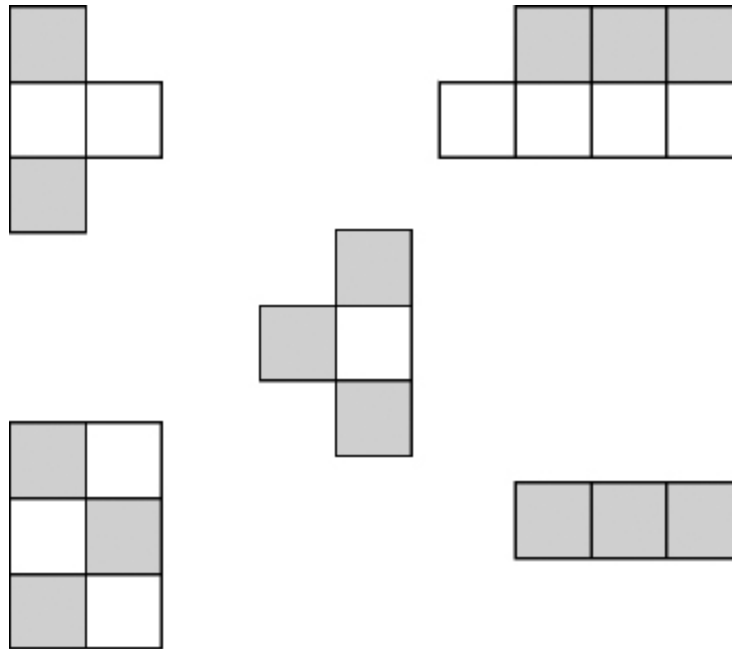
$\frac{1}{3}$ of the marbles are red.

How many marbles are red?

1 mark

3. Here are some shapes.
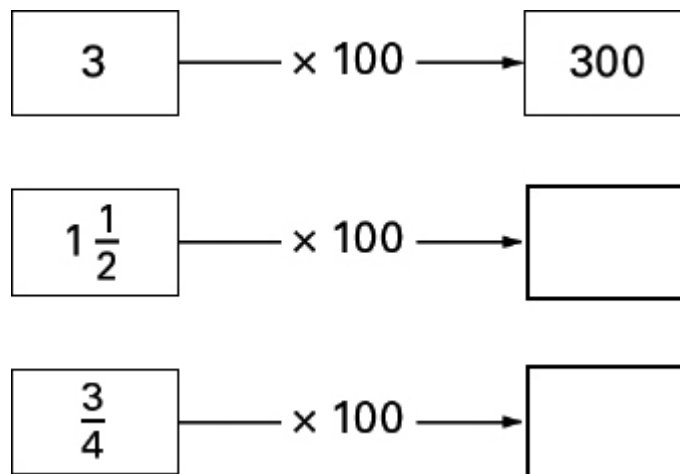
Tick (✓) the shape that has $\frac{3}{4}$ shaded.

1 mark

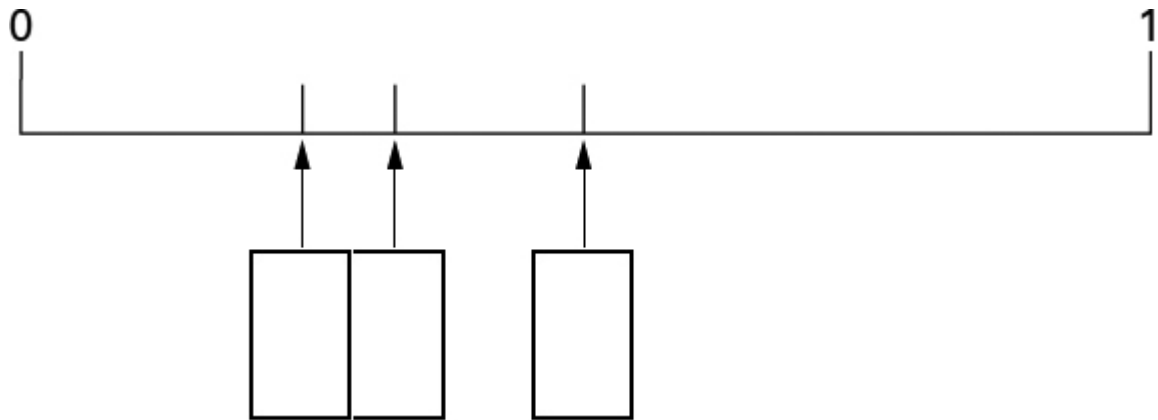**4.** Write in the missing numbers.

One has been done for you.

1 mark

5. Here are three fractions.

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

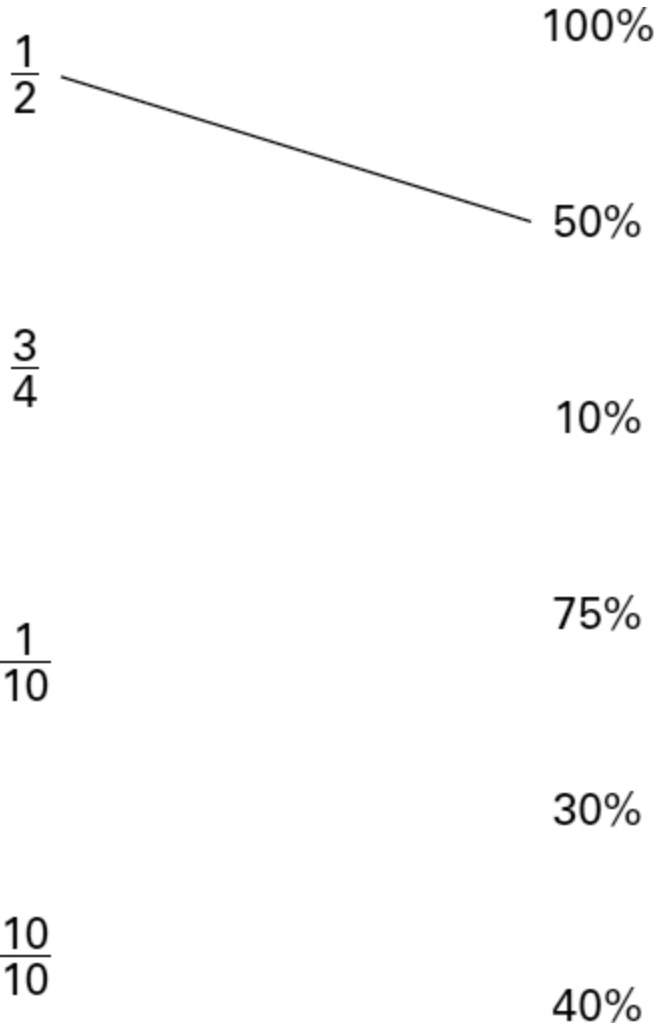Write the fractions in the correct boxes on the number line.

1 mark

6. Match each fraction to the percentage which has the same value.

One has been done for you.

$\frac{1}{2}$ ——————————— 100%

50%

$\frac{3}{4}$

10%

75%

$\frac{1}{10}$

30%

$\frac{10}{10}$

40%

1 mark

7. The numbers in this sequence increase by equal amounts each time.

Write in the missing numbers.

$2\frac{1}{2}$ ☐ $13\frac{1}{2}$ ☐ $24\frac{1}{2}$ ☐

2 marks

8. Mr Barker takes his class to a museum.

They enter the dinosaur display at 12:45pm.

They leave at 1:30pm.

How long do they spend at the dinosaur display.
Circle the correct answer.

$\frac{1}{4}$ hour $\qquad\qquad$ $\frac{1}{2}$ hour $\qquad\qquad$ $\frac{3}{4}$ hour
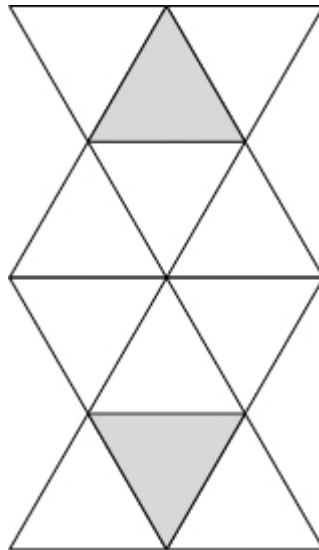
1 hour $\qquad\qquad$ more than
1 hour

1 mark

9. Here is a shape made from matching triangles.

Circle the fraction of the shape that is shaded.

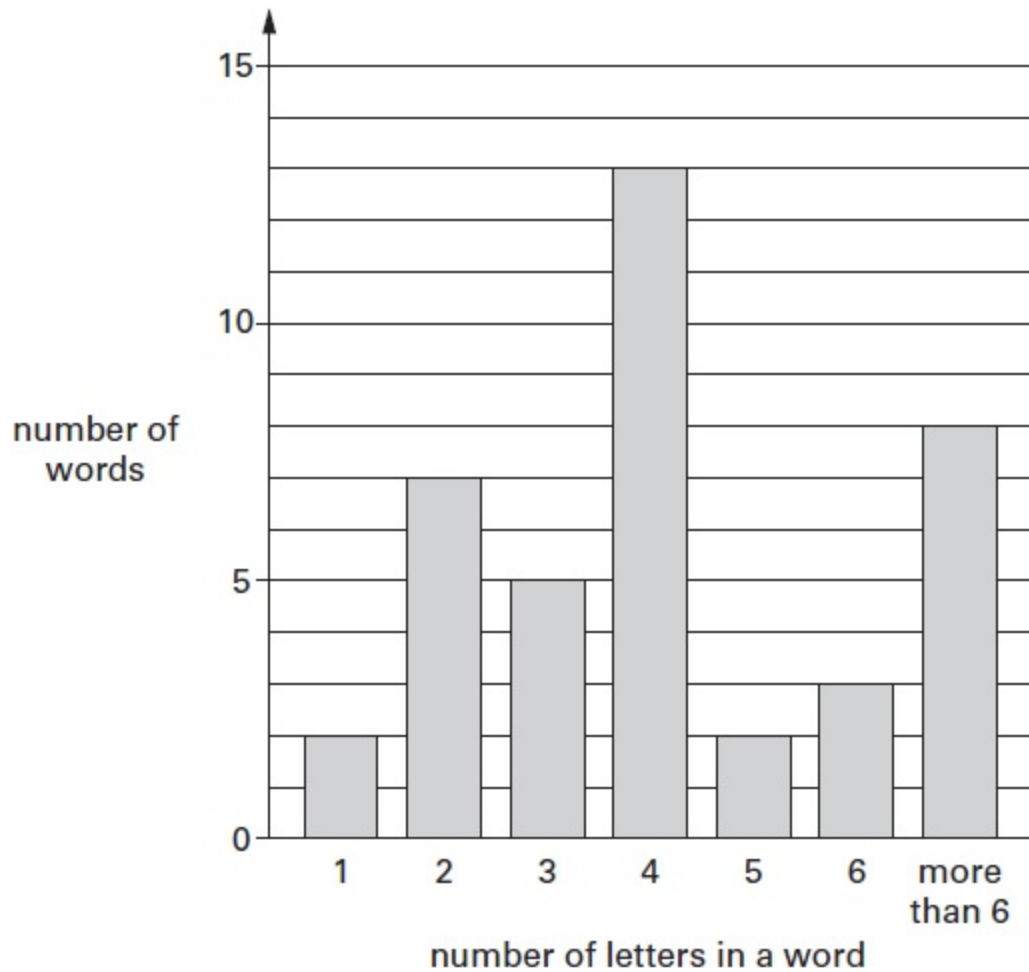$\frac{1}{2}$ $\qquad$ $\frac{1}{3}$ $\qquad$ $\frac{1}{4}$ $\qquad$ $\frac{1}{5}$ $\qquad$ $\frac{1}{6}$

1 mark

10. Emma counts how many letters there are in each of 40 words.

The bar chart shows her results.
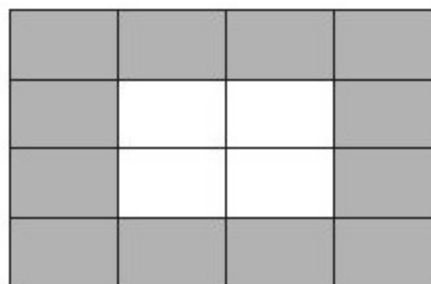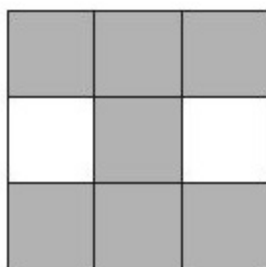

number of letters in a word

How many words have **fewer** than 4 letters in them?

1 mark

What **fraction** of the 40 words have **more than** 6 letters in them?

1 mark

11. Tick the shape that has $\frac{1}{2}$ shaded.

1 mark

12. Draw an arrow (↓) on the number line to show $1\frac{1}{4}$

1 mark

13. Write these numbers in order starting with the smallest.

$\frac{1}{3}$ $\frac{1}{8}$ $\frac{1}{2}$ $\frac{1}{4}$

smallest   largest

1 mark

14. Peter has a box that contains 5 chocolate cupcakes and 3 vanilla cupcakes.

(a) What fraction of the cupcakes in the box are vanilla?

1 mark

(b) Peter adds one chocolate cupcake and one vanilla cupcake to the box.

What fraction of the cupcakes in the box are vanilla now?

1 mark

15. Shade $\frac{3}{4}$ of this shape.

1 mark

16. Boris cuts a cake into 8 equal pieces.

Boris eats $\frac{4}{8}$ and Simon eats $\frac{3}{8}$ of the cake.

What fraction of the cake is left?

1 mark

17.

small bottle
of water

500 ml

large bottle

$2\frac{1}{2}$ litres

How many small bottles of water will fill the large bottle?

small bottles

1 mark

18. Tick (✓) the shape that is exactly $\frac{1}{3}$ shaded.

1 mark

19. Draw lines to divide the rectangle into eight equal parts.

Use the dots to help you.

1 mark

20. Here are some number cards.

7   5   9   3   11

(a) Use **two** of the cards to make a fraction which is **more than** $\frac{1}{2}$ but less than 1

$$\frac{\boxed{}}{\boxed{}}$$

1 mark

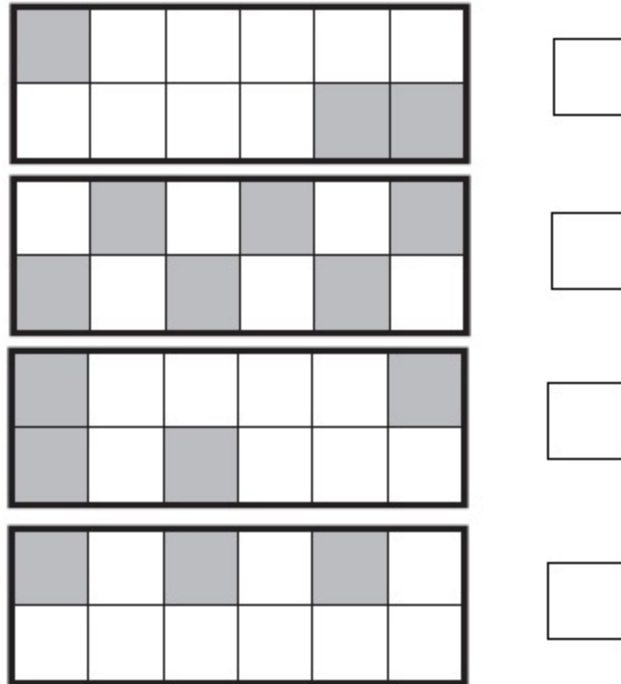(b) How much **less than 1** is your fraction?

[ ]

1 mark

21. Write the two missing values to make these equivalent fractions correct.

$$\frac{\boxed{}}{5} = \frac{6}{10} = \frac{12}{\boxed{}}$$

2 marks

22. (a) Place these numbers in order of size, starting with the **smallest**.

0.17   0.7   0.071   0.107

[ ]   [ ]   [ ]   [ ]

smallest   largest

1 mark

(b)   Place these fractions in order of size, starting with the **smallest**.

$$\frac{4}{6} \qquad \frac{1}{4} \qquad \frac{1}{2} \qquad \frac{5}{12}$$

smallest   largest

1 mark

23. Tom ate half a cookie.

Which fraction shows the amount he ate?

Circle it.

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

1 mark

24. What fraction of these birds is **grey**?
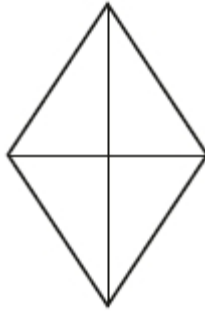
Write the fraction.

☐

1 mark

25. Shade the fractions of the shapes.

Shade $\frac{3}{4}$

Shade $\frac{1}{2}$

Shade $\frac{2}{3}$

2 marks

26. Place these numbers in order of size, starting with the **smallest.**

0.87	0.7	0.078	0.807
smallest			**largest**

1 mark

Place these fractions in order of size, starting with the **smallest.**

$$\frac{1}{2} \qquad \frac{3}{4} \qquad \frac{5}{6} \qquad \frac{7}{12}$$

smallest   **largest**

1 mark

27. **Fractions**

Write the missing numbers.

$$\boxed{} = \frac{1}{2} \text{ of } 16$$

1 mark

double $\boxed{} = \frac{1}{2}$ of 16

1 mark

28. **Finding fractions**

Look at the shape.

What **fraction** of the shape is shaded?

1 mark

29. **Fraction wall**

Look at the fraction diagram.

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

Write the missing numbers in the boxes below.

$$1 = \frac{\boxed{}}{\boxed{6}}$$

1 mark

$$\frac{\boxed{1}}{\boxed{2}} = \frac{\boxed{}}{\boxed{6}}$$

1 mark

$$\frac{\boxed{}}{\boxed{3}} = \frac{\boxed{4}}{\boxed{6}}$$

1 mark

30. Look at these numbers.

| 5 | $7\frac{1}{2}$ | 9 | $12\frac{1}{2}$ | 17 | $22\frac{1}{2}$ |

(a) Which two of these numbers **add up to 20**?

☐ ☐

1 mark

(b) Which two of these numbers have a **difference of 10**?

☐ ☐

1 mark

31. **Shading fractions**

(a) Which shape below is shaded $\frac{3}{4}$ grey?

Put a ring round the correct one.

1 mark

(b) Amy says:

$\frac{1}{2}$ of 20 is bigger than $\frac{1}{2}$ of 40

Is she correct?

Yes ☐   No ☐

Explain how you know.

1 mark

32. **Thinking fractions**

(a) Sam wrote the calculation:

$$\frac{1}{4} + \frac{1}{4} = \frac{2}{8}$$

Is he correct?

Yes ☐   No ☐

Explain your answer.

1 mark

(b)   Think about the fraction $\frac{1}{5}$

How many of them add to make 1?

1 mark

33.   **Beads**

Some beads are on a string.

Half of the beads are hidden.
How many beads are there **altogether**?

1 mark

34. **Ribbon**

(a)   Gold ribbon costs **60p for one metre**. Tom has **£2.40**
How many metres of gold ribbon can he buy?

$$\boxed{\qquad\qquad \text{metres}}$$

1 mark

(b)   Blue ribbon costs **40p for one metre**. Nicola buys $3\frac{1}{2}$ **metres**.

How much does this cost?

$$\boxed{£ \qquad\qquad}$$

1 mark

35. **Rectangles**

Look at the rectangles on the square grid.

Jan says:

The **same fraction** of each rectangle is shaded.

Is Jan correct? Tick (✓) Yes or No.

Yes ☐   No ☐

Explain your answer.

1 mark

36. **Climbing**

Some people are climbing down walls. The diagram shows their positions.

(a) Write a fraction in each box to show about how far **down** the wall each person is.

The first one is done for you.

$\dfrac{1}{4}$

2 marks

(b)   A different person is about $\frac{1}{3}$ of the way **down** the wall.

Draw a line on the wall to show the person's position.

1 mark

37. **Square grid**

Part of a square grid is shaded.

(a) **What fraction** of the grid is shaded?

1 mark

The diagram shows the same grid after a **quarter turn clockwise**.

(b) Shade this diagram to show the grid after **another** quarter turn clockwise.

1 mark

38. **Money**

(a) Work out $\frac{3}{4}$ of **£8**

£

1 mark

(b)   Work out $\frac{3}{5}$ of **£10**

£ [   ]

1 mark

(c)   Is $\frac{2}{3}$ of **£15** the same amount as $\frac{1}{3}$ of **£30**?

Tick (✓) Yes or No.

Yes [   ]   No [   ]

Explain how you know.

1 mark

39. **Fractions**

(a) Match each calculation with the correct fraction answer.

The first one is done for you.

$\dfrac{1}{5} + \dfrac{2}{5}$		$\dfrac{13}{20}$
$\dfrac{3}{8} + \dfrac{1}{8}$		$\dfrac{3}{5}$
$\dfrac{2}{5} + \dfrac{1}{4}$		$\dfrac{1}{2}$
$\dfrac{7}{8} - \dfrac{3}{4}$		$\dfrac{1}{6}$
$\dfrac{1}{2} - \dfrac{1}{3}$		$\dfrac{1}{8}$

2 marks

(b) Work out $\dfrac{1}{2} + \dfrac{1}{3}$

1 mark

40. **Sixteenths**

$\frac{15}{16}$ as a decimal is **0.9375**

What is $\frac{31}{16}$ as a decimal?

1 mark

41. **Half and one**

Write two **different** fractions that are greater than $\frac{1}{2}$ but less than 1

$\frac{\boxed{}}{\boxed{}}$ and $\frac{\boxed{}}{\boxed{}}$

2 marks

42. **American dollars**

£1 = 1.56 dollars

How much is **£1.50** in dollars?

dollars

1 mark

43. **Quiz**

In a quiz, Ravi answered **24** out of **40** questions correctly.

What **percentage** of the questions did he answer correctly?

| %

1 mark

44. **Fraction cards**

Here are some fraction cards.

$\frac{1}{3}$ $\frac{1}{3}$ $\frac{1}{3}$ $\frac{1}{3}$

$\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$

Use **five** of these cards to make a total of **1$\frac{1}{2}$**

$\bigcirc$ + $\bigcirc$ + $\bigcirc$ + $\bigcirc$ + $\bigcirc$ = 1$\frac{1}{2}$

1 mark

45. **High jump**

Dave and Steve are in a high jump competition.

Dave jumps $1\frac{1}{4}$ metres.

Steve jumps **1.4** metres.

Who jumps higher? Tick (✓) Dave or Steve.

| | Dave | | Steve |

How much higher does he jump?

Give your answer in metres.

Show your method

| | metres |

2 marks

46. **Fractions and decimals**

(a)   Write the missing **decimal** so that each pair **adds to 1**

The first one is done for you.

fraction   decimal

$$\boxed{\frac{1}{4}} \; + \; \boxed{0.75} \; = \; 1$$

$$\boxed{\frac{3}{10}} \; + \; \boxed{} \; = \; 1$$

$$\boxed{\frac{3}{5}} \; + \; \boxed{} \; = \; 1$$

2 marks

(b)   Write the missing **fraction** so that the pair below **adds to 1**

Write the fraction as simply as possible.

fraction   decimal

$$\boxed{} \; + \; \boxed{0.72} \; = \; 1$$

Show
your
method

2 marks

47. **Regular hexagons**

(a) This shape is made from regular hexagons.

What **fraction** of the shape is shaded?


```
[                    ]
```

1 mark

(b) This shape is also made from regular hexagons.

What **fraction** of the shape is shaded?


```
[                    ]
```

1 mark

48. **Number line**

A number line starts at **−9** and finishes at **11**

What number is $\frac{2}{5}$ of the way along the number line?

Show your method

2 marks

49. **Relative sizes**

A teacher asked pupils to divide 28 by 3.

Gail wrote	$28 \div 3 = 9.33$
Ahmed wrote	$28 \div 3 = 9\frac{1}{3}$

The teacher marked both correct, but said Ahmed's answer was better than Gail's answer.

Explain why $9\frac{1}{3}$ is not the same as 9.33

1 mark

50. **Unit fractions**

The diagram shows that $\frac{1}{2} + \frac{1}{4} + \frac{1}{6} + \frac{1}{12} = 1$

Draw lines on the rectangle below to show that $\frac{1}{2} + \frac{1}{4} + \frac{1}{5} + \frac{1}{20} = 1$

Label each part with its fraction.

2 marks

51. **Using fractions**

Complete the table.

The first one is done for you.

The number of **quarters** in $1\frac{1}{4}$	5 _____
The number of **quarters** in $4\frac{1}{2}$	
The number of **tenths** in $3\frac{3}{10}$	
The number of **tenths** in $3\frac{3}{5}$	

3 marks

52. **Fractions**

In this question, each diagram is drawn on a square grid.

$\frac{1}{2}$ of this diagram is shaded.

(a) Explain how you know $\frac{1}{8}$ of this diagram is shaded.

1 mark

(b)   What fraction of this diagram is shaded?

1 mark

(c)   **Shade** $\frac{3}{4}$ of this diagram.

You must use on **two straight lines**, and **both** of the lines must **start at point P**.

1 mark

53. A shop has 12 bags of crisps.

It sells $\frac{1}{4}$ of the bags.

How many bags of crisps did the shop **sell**?

bags

1 mark

54. Tick the shape that has exactly $\frac{1}{3}$ shaded.

1 mark

55. Circle $\frac{1}{3}$ of the apples below.

1 mark

56. This shape is divided into equal parts.

What fraction of this shape is shaded?

1 mark

57. Look at the number line.

Join each fraction to the correct place.

One is done for you.

$\frac{1}{2}$ $\frac{1}{4}$ $\frac{3}{4}$

1 mark

58. Colour $\frac{1}{2}$ of this shape.

1 mark

59. Tick (✓) the square which is **exactly halfway** between squares **A1** and **G7**

7
6
5
4
3
2
1

A   B   C   D   E   F   G

1 mark

60. What is **half** of this amount?

£

1 mark

61. Desi had some cherries.

He ate **half** of them.

These are the cherries he **left**.

How many cherries did he start with?

	cherries

1 mark

62. Write the missing number to make this correct.

$$\frac{1}{4} \text{ of } 24 = \frac{1}{2} \text{ of } \boxed{}$$

1 mark

63. Divide this shape into **4** equal parts.

Use a ruler

1 mark

64. Some squares have been shaded.

Shade more squares so that $\frac{3}{4}$ of the shape is shaded.

1 mark

65. Write the number which is half of **38**

1 mark

66. Amy ate $\frac{1}{4}$ of these chocolate buttons.

How many did she eat?

1 mark

67. 3 squares on the snake are filled in.

Fill in more squares to cover **half** of the snake.

1 mark

68. Complete the number pattern.

```
        ( 96 )
half      |
          v
        ( 48 )
half      |
          v
        (    )
half      |
          v
        (    )
half      |
          v
        (    )
```

2 marks

Mark schemes

1. 4

Do not accept four triangles shaded without 4 written in the answer box.

[1]

2. 8

[1]

3. One shape ticked as shown:

Accept any other clear way of indicating the correct shape, such as circling.

[1]

4. Two boxes completed as shown:

Both numbers must be correct for the award of the mark.

[1]

5. Boxes completed as shown:

All three boxes must be correct for the award of the mark.

[1]

6. All three fractions matched as shown:

All three lines must be drawn correctly for the award of the mark.

Lines need not touch the numbers provided the intention is clear.

Do not accept fractions which have been matched to more than one percentage.

[1]

7. Award **TWO** marks for all three boxes completed correctly as shown:

$2\frac{1}{2}$ **8** $13\frac{1}{2}$ **19** $24\frac{1}{2}$ **30**

If both marks are awarded, record by entering 1 in each marking space.

If the answer is incorrect, award **ONE** mark for any two boxes completed correctly.

Accept for ONE mark all three numbers lower than the correct answers by $\frac{1}{2}$, ie

$7\frac{1}{2}$ $18\frac{1}{2}$ $29\frac{1}{2}$

Accept for ONE mark all three numbers higher than the correct answers by $\frac{1}{2}$, ie

$8\frac{1}{2}$ $19\frac{1}{2}$ $30\frac{1}{2}$

Award ONE mark by entering 1, 0 in the marking spaces.

Up to 2m

[2]

8. One answer circled as shown:

$\frac{1}{4}$ hour $\frac{1}{2}$ hour $\boxed{\frac{3}{4}\text{ hour}}$

1 hour   more than 1 hour

Accept any other clear way of indicating the correct answer, such as ticking or underlining.

[1]

9. One answer circled as shown:

$\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{4}$ $\frac{1}{5}$ $\left(\frac{1}{6}\right)$

Accept any other clear way of indicating the correct number, such as ticking or underlining.

[1]

10. (a) 14

1

(b) $\frac{8}{40}$ OR $\frac{1}{5}$

Accept equivalent fractions, decimals or percentages, eg 0.2 or 20%

1

[2]

11. Both shapes ticked as shown:

Accept alternative unambiguous positive indications, e.g. shape circled.

[1]

12. An arrow drawn on the number line as shown:

Accept any other clear way of indicating $1\frac{1}{4}$ on the number line as long as the intention is clear.
Accept slight inaccuracies, provided the intention is clear.

[1]

13. $\frac{1}{8}$ $\frac{1}{4}$ $\frac{1}{3}$ $\frac{1}{2}$

[1]

14. (a) $\frac{3}{8}$

Accept equivalent fractions or decimals.

1

(b) $\frac{4}{10}$ OR $\frac{2}{5}$

Accept equivalent fractions or decimals.

1

[2]

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

Accept inaccurate shading provided the intention is clear.

[1]

16. 1/8

[1]

17. 5 (small bottles)

[1]

18. Diagram ticked correctly as shown:

Accept alternative unambiguous indications.

[1]

19. Rectangle divided into eight equal parts, e.g.

OR

OR

Accept slight inaccuracies in drawing lines provided the intention is clear.
Accept divisions that do not use dots, provided the lines drawn are reasonably accurate, and the pupil's intention is clear, e.g.

Do not award the mark if the rectangle is divided into four unequal parts, e.g.

[1]

20. (a)

$\dfrac{5}{7}$ OR $\dfrac{5}{9}$ OR $\dfrac{3}{5}$ OR $\dfrac{9}{11}$ OR $\dfrac{7}{9}$ OR $\dfrac{7}{11}$

Accept only fraction formed by the cards given.

1

(b) $\dfrac{2}{7}$ OR $\dfrac{4}{9}$ OR $\dfrac{2}{5}$ OR $\dfrac{2}{11}$ OR $\dfrac{2}{9}$ OR $\dfrac{4}{11}$

1

[2]

21. $\dfrac{\boxed{3}}{5} = \dfrac{6}{10} = \dfrac{12}{\boxed{20}}$

[2]

22. (a) $\boxed{0.071}\ \boxed{0.107}\ \boxed{0.17}\ \boxed{0.7}$

All four numbers in their correct places.

1

(b) $\boxed{1/4}\ \boxed{5/12}\ \boxed{1/2}\ \boxed{4/6}$

All four numbers in their correct places.

1

[2]

23. Correct fraction circled as shown:

$\dfrac{1}{4}\quad \dfrac{1}{3}\quad \boxed{\dfrac{2}{4}}\quad \dfrac{3}{4}$

Accept any other clear way of indicating the correct answer.
Do not award the mark if additional fractions are indicated, unless it is clear the correct fraction is the pupil's final choice.
Do not accept alternative equivalent values written, e.g. the word 'half'.

[1]

24. $\frac{7}{10}$

Accept equivalent fractions, e.g. 0.7, seven-tenths (please note: this question is intended to assess the identification of the correct fraction, rather than use of correct notation).

[1]

25. Award **TWO** marks for all shapes correctly shaded, e.g.

Shade $\frac{3}{4}$

Shade $\frac{1}{2}$

Shade $\frac{2}{3}$

Award **ONE** mark for any **two** shapes correctly shaded.
Accept any other clear way of indicating the correct fractions; e.g. marking the appropriate number of sections.

[2]

26. (a) 0.078 0.7 0.807 0.87

All four numbers in their correct places.

1

(b) 1/2 7/12 3/4 5/6

All four numbers in their correct places.

Accept $\frac{6}{12}$ $\frac{7}{12}$ $\frac{9}{12}$ $\frac{10}{12}$

1

[2]

27. 8

Do not accept: incomplete processing
eg, for the first mark
   • 5 + 3

1

4

For the second mark, follow through
Accept follow through as their value for the first mark ÷ 2

1

[2]

28. $\frac{1}{2}$ or equivalent fraction

Accept equivalent fractions and decimals e.g
$\frac{8}{16}$, 0.5

[1]

29. Gives the correct numerator, ie

$$\frac{6}{6}$$

1

Gives the correct numerator, ie

$$\frac{3}{6}$$

1

Gives the correct numerator, ie

$$\frac{2}{3}$$

1

[3]

30. (a) Indicates $7\frac{1}{2}$ and $12\frac{1}{2}$, in either order

1

(b) Indicates $12\frac{1}{2}$ and $22\frac{1}{2}$, in either order

Accept equivalent fractions or decimals

1

[2]

31. (a) Indicates only the correct shape, ie

1

(b) Indicates No and gives a correct explanation

The most common correct explanations:

Show or imply the correct evaluation of both calculations, eg

• $\frac{1}{2}$ of 20 = 10 and $\frac{1}{4}$ of 40 = 10

• They both equal 10

•

• $\frac{1}{2}$ of 20 = $\frac{1}{4}$ of 40

Use ratio, eg

• 20 doubled is 40 and half of $\frac{1}{2}$ is $\frac{1}{4}$

Accept minimally acceptable explanation, eg

• *10, 10 seen*
• *Equal*
• *Same*
•

Do not accept incomplete explanation, eg

- *10 seen*
- $\frac{1}{2}$ *or 20 is 10*
- $\frac{1}{4}$ *or 40 is 10*

Accept minimally acceptable explanation, eg

- *20 × 2 = 40, $\frac{1}{2} \div 2 = \frac{1}{4}$*
- *20 is half of 40 and 2 is half of 4*
- *You have doubled the number and halved the fraction*

Do not accept incomplete explanation, eg

- $\frac{1}{2}$ *is double* $\frac{1}{4}$
- *It's just doubled*

U1

[2]

32. (a)   Indicates No and gives a correct explanation
The most common correct explanations:

Show or imply the correct sum, eg

- $\frac{1}{4} + \frac{1}{4} = \frac{2}{8} + \frac{2}{8} = \frac{4}{8}$

- $\frac{1}{4} + \frac{1}{4} = \frac{1}{2}$, but $\frac{2}{8} = \frac{1}{4}$

- $0.25 + 0.25 = 0.5$ and $0.5 = \frac{4}{8}$

-

Accept minimally acceptable explanation, eg

- $\frac{4}{8}$
- $\frac{2}{4}$
- $\frac{1}{2}$
- *Half*

Give a correct and comparable calculation that gives $\frac{2}{8}$, eg

- $\frac{1}{4} + 0 = \frac{2}{8}$
- $\frac{1}{4} = \frac{2}{8}$ so you can't add another $\frac{1}{4}$
- $\frac{1}{8} + \frac{1}{8} = \frac{2}{8}$

Accept minimally acceptable explanation, eg

- $\frac{1}{4} = \frac{2}{8}$

Address the misconception, eg
- Sam has just added the top numbers together and the bottom numbers together and you can't add fractions like that

- You don't need to change the bottom number, just add the top ones together

Accept minimally acceptable explanation, eg
- *He added the top and bottom numbers together*
- *You only add the top numbers [denominator unchanged implied]*
- *You don't add the bottom numbers [numerators added implied]*

Do not accept incomplete explanation, eg
- *You add the numerators*
- *You keep the denominator the same*

U1

(b) Indicates 5

Answer repeats fifths
Condone

eg, accept
- $\frac{5}{5}$
- $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$

The stated $\frac{1}{5}$ not included

Accept provided it is clear that it is not included

eg, accept
- *4 more*
- *An extra $\frac{4}{5}$*

eg, do not accept
- *4*

1

[2]

33. 24

Do not accept incomplete processing, eg
- *2 × 12*
- *12 + 12*

[1]

34. (a) 4

1

(b) £ 1.40

1

[2]

35. Indicates Yes and gives a correct explanation

The most common correct explanations:

Show that the fraction is $\frac{1}{3}$ for both rectangles, eg

- First rectangle has 6 squares, $\frac{1}{3}$ of 6 = 2
- Second rectangle has 12 squares, $\frac{1}{3}$ of 12 = 4
- 2 is a third of 6, 4 is a third of 12
- 6 ÷ 3 = 2 and 12 ÷ 3 = 4

Accept minimally acceptable explanation, eg

- $\frac{1}{3}$
- *Both divided by 3*

Use equivalent fractions, eg

- $\dfrac{2}{6} = \dfrac{4}{12}$

- $\dfrac{1}{3} = \dfrac{2}{6}$

Accept minimally acceptable explanation, eg
- *One is 2 out of 6 and the other is 4 out of 12*

Reason spatially, eg
- The 2nd rectangle is twice the area of the 1st, so twice as much should be shaded and it is
- Double 6 is 12, double 2 is 4

Accept minimally acceptable explanation, eg
- *Three shaded bits fit in each rectangle*
- *You can get two more shaded bits in each*

! Incorrect description of units of area
Condone

eg, accept
- *First is one square out of 3, second is two squares out of 6*

Do not accept incomplete explanation, eg
- *In the first there are 2 shaded and in the second there are 4 shaded*
- *The second rectangle is twice the area of the first*
- *The bigger one has twice as much shaded*
- *The second is double the first*
- *The same proportion is shaded in each*

U1

[1]

36.   (a)   Indicates ½ or equivalent fraction

Accept value between 0.4 and 0.6 inclusive, even if given as a decimal or percentage

Indicates 3/4 or equivalent fraction

Accept value between 0.65 and 0.85 inclusive, even if given as a decimal or percentage, eg

$\dfrac{2}{3}$

1

(b)   Indicates the position of the climber within the tolerance as shown by the overlay
Accept any unambiguous indication

!   Accuracy difficult to judge, eg
Climber drawn, but no line
Line not horizontal
In drawings of the climber with no line, take as their indication the mid-point of the climber's feet. Otherwise, do not accept if their indication extends beyond the tolerance as shown by the overlay

1

[3]

37.   (a) $\frac{7}{9}$ or equivalent fraction
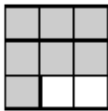
!   Answer given as a decimal
If a correct fraction is seen, ignore subsequent conversion to a decimal even if incorrect
If only a decimal is given, accept 0.78 or 0.77(...)
Do not accept 0.8 unless a more accurate value is seen

1

(b)   Indicates the correct squares, ie

Do not accept incorrect shading, eg

1

[2]
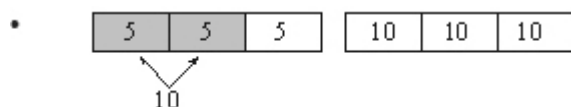
38.   (a)   £ 6

1

(b)   £ 6

1

(c)   Indicates Yes and gives a correct explanation

The most common correct explanations:

Evaluate both correctly, eg

- $\frac{2}{3}$ of 15 = 10, $\frac{1}{3}$ of 30 = 10

- They're both 10

-

Accept minimally acceptable explanation, eg
- *10, 10 seen*
- *15 ÷ 3 × 2 = 30 ÷ 3*
-

Do not accept incomplete explanation, eg

- If you work out $\frac{2}{3}$ of 15 you get the same answer as $\frac{1}{3}$ of 30

Use ratio, eg
- 15 doubled is 30, and half of $\frac{2}{3}$ is $\frac{1}{3}$
-

Accept minimally acceptable explanation, eg

- *Double 15 is 30, double $\frac{1}{3}$ is $\frac{2}{3}$*

- *15 is half of 30 and 1 is half of 2*
- *You have doubled the number and halved the fraction*

Do not accept incomplete explanation, eg

- *$\frac{1}{3}$ is half of $\frac{2}{3}$*

- *If you half 30 it's 15 so they are the same*
- *It's just doubled*

U1

[3]

39. (a) Matches all four calculations correctly, ie

      !   *Calculation matched to more than one fraction*
         For 2m or 1m, do not accept as a correct match

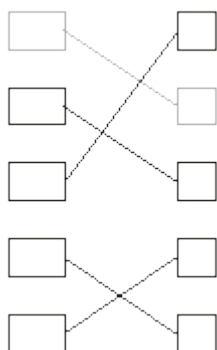   **2**

      or   Matches at least two calculations correctly

      1

  (b) $\dfrac{5}{6}$ or equivalent

      !   *Decimal value rounded*
         Accept 0.83 or better

      1

      [3]

40. 1.9375 or equivalent decimal

      U1

      [1]

41. Award **TWO** marks for two different fractions that are greater than $\dfrac{1}{2}$ but less than 1, eg

  • $\dfrac{3}{4}$ and $\dfrac{2}{3}$ or equivalent fractions

Do not accept for 2m, two fractions that are equivalent, eg

  • $\dfrac{3}{4}$ *and* $\dfrac{6}{8}$

Award **ONE** *mark for one fraction that is greater than* $\dfrac{1}{2}$ *but less than 1 even if the other is incorrect, a duplicate or omitted*

Do not *accept for 2m or 1m, incorrect notation for fractions, eg*

  • $\dfrac{0.4}{0.6}$ *and* $\dfrac{\frac{1}{2}}{\frac{2}{3}}$

      Up to 2

      [2]

42. 2.34

!   Incorrect units inserted
Ignore
Do not accept equivalent fractions or decimals

[1]

43. 60

1

[1]

44. Indicates $\frac{1}{3}, \frac{1}{3}, \frac{1}{3}, \frac{1}{4}, \frac{1}{4}$, in any order

[1]

45. Indicates Steve and gives the value 0.15 or equivalent

2

or   Shows the value 0.15 or equivalent

or

Indicates Steve and shows the digits 15

or

Indicates Steve and shows either the value 1.25 or equivalent decimal or the value 125

or

Indicates Steve and converts both heights to mixed numbers or fractions, where the fractions have a common denominator, eg

- $1\frac{10}{40}, 1\frac{16}{40}$

1

[2]

46. (a)   0.7 or equivalent decimal
Do not accept equivalent fractions

1

0.4 or equivalent decimal

1

(b) $\frac{1}{25}$

Do not accept equivalent decimals

2

or Show the fraction $\frac{28}{100}$ or equivalent fraction, even if there is incorrect further processing

! **For 1m, incorrect notation, eg**

- $\frac{2.8}{10}$

Do not accept unless a correct fraction is also shown

1

[4]

47. (a) $\frac{3}{4}$

1

(b) $\frac{1}{2}$

Accept equivalent fractions or decimals

! **Equivalent percentages**
Penalise only the first occurrence

Do not accept incorrect notation
eg, for part (b)

- $\frac{2.5}{5}$

- $\frac{2\frac{1}{2}}{5}$

1

[2]

48. − 1

2

or Calculates that the distance from − 9 is 8, eg

- − 9 to 11 is 20, $\frac{2}{5}$ of 20 is 8

- − 9 + 11 = 20, $\frac{2}{5} = \frac{8}{20}$

- 8 given as answer

or

Makes not more than one computational error but continues to find their correct follow through value, eg

- The length of the line is 30 *(error)* $\frac{2}{5}$ of 30 = 12, − 9 + 12 = 3

- $\frac{2}{5}$ of 20 = 6 *(error)*, − 9 + 6 = −3

1

[2]

49. Correct explanation that considers the accuracy of 0.33 and $\frac{1}{3}$, eg
- 9.33 is rounded
- $9\frac{1}{3}$ is exact
- 9.33 should be 9.333333333
- Because the 3s should go on for ever
- $\frac{1}{3} > 0.33$
- $9\frac{1}{3} \times 3 = 28$ but $9.33 \times 3 = 27.99$

Accept minimally acceptable explanation, eg
- $\frac{1}{3}$ *as a decimal keeps going for ever*

Do not accept incomplete explanation, eg
- *One is a fraction, the other is a decimal*
- $9\frac{1}{3}$ *is more accurate*
- $9\frac{1}{3}$ *is the simplest form*

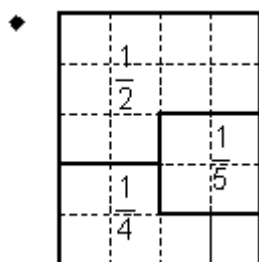*Do not accept no indication of which is exact, eg*
- *One of them is rounded*

Do not accept incorrect statement eg
- $9\frac{1}{3} \times 3 = 27$, *but* $9.33 \times 3 = 27.99$

[1]

50. Draws a correct diagram, and labels at least 3 of the 4 parts correctly, eg
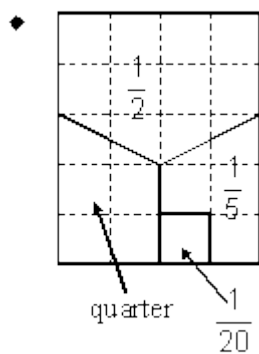
◆

Note:

$\frac{1}{2}$ is 10 squares,

$\frac{1}{4}$ is 5 squares

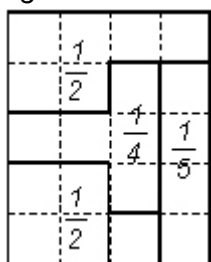$\frac{1}{5}$ is 4 squares, and

$\frac{1}{20}$ is 1 square

◆

! **Drawing not accurate**
Accept provided the pupil's intention is clear

! **One or more of the parts subdivided**
eg

2

or Any two parts correct and labelled

or

All four parts correct but no labelling or labels incorrect
If it is clear which parts are which, mark as 1, 0

1

[2]

51. 18

1

33

1

36

1

[3]

52. (a) Gives a correct explanation
Accept imprecise use of language
In this context, accept, eg

- It's $\frac{2}{16}$ so half it

The most common correct explanations:
Use ratio, eg

There are 7 times as many white as grey squares
Do not accept incorrect statement, eg
- *You only count squares if there is more than half shaded, so it's 2 out of 16*

Show understanding of fractions, eg

- It's half of a quarter
Accept minimally acceptable explanation for understanding of fractions, eg
- *4 squares is a quarter; 2 squares is one eighth*
- *There are 4 rows. Half of one row is shaded, that makes one eighth*

Use spatial methods, eg

*   Move the triangle under, then there are 8 equal parts

*   If two squares stand for one unit, there are 8 units altogether.
    The two shaded bits fit together to make 1 unit, so it's 1 out of 8

Refer to both 2 and 16, eg

*   There are 16 squares 2 are shaded an $\dfrac{2}{16} = \dfrac{1}{8}$

*   There are 2 shaded triangles. Altogether, there would be 16 triangles so it's 2 out of 16

*   2 are shaded and 2 is $\dfrac{1}{8}$ of 16

Accept minimally acceptable explanation for referring to both 2 and 16, eg
*   *16 squares, 2 are shaded*
*   *It's $\dfrac{2}{16}$*

Do not accept incomplete explanation that does not interpret the 8, eg
*   *2 squares shaded so it's $\dfrac{1}{8}$*
*   *The 2 squares make one and it's 1 out of 8*

1

(b) $\dfrac{3}{8}$ or equivalent fraction
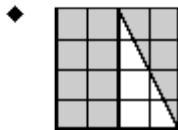
!   Decimal fraction
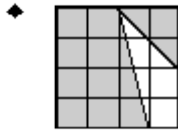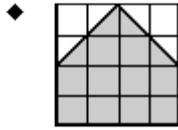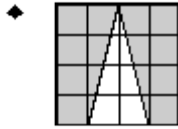*Accept only if exact, ie 0.375*

!   Incorrect cancelling
If a correct fraction is seen, ignore further incorrect working, eg accept
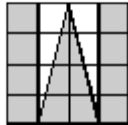* $\dfrac{6}{16} = \dfrac{3}{9}$*

1

(c)   Shades $\frac{3}{4}$ using 2 lines, both of which start at P, eg
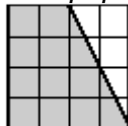

Accept lines not ruled
Do not accept no shading
Do not accept other than 2 straight lines used, eg

!   Two adjacent regions shaded
Accept provided both lines start at P, eg
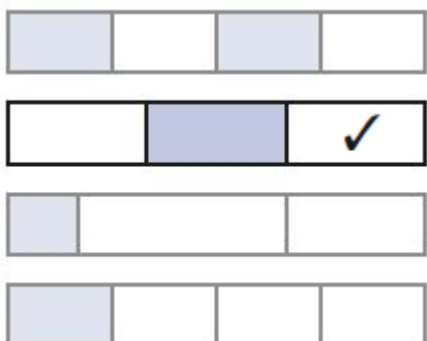

1

[3]

53.   3 (bags)

Accept 3 bags indicated on the image as long as it is clear that this is the pupil's final intended answer.

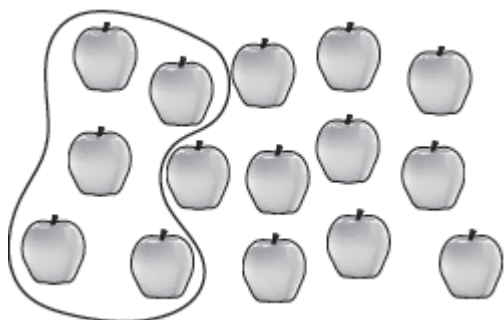**[1]**

54. Correct shape ticked as shown:

Accept any other clear way of indicating the correct shape.
Do not *award the mark if additional shapes are indicated, unless it is clear that the correct shape is the pupil's final choice.*

[1]

55.

Accept any other clear indication of 5 apples being selected.
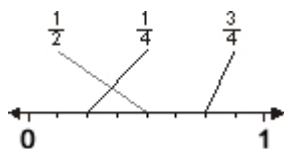
[1]

56. $\frac{1}{4}$ **or** one-quarter

Accept two-eighths, or equivalent fractions, in numbers or words.

[1]

57. Fractions joined to the correct positions as shown:

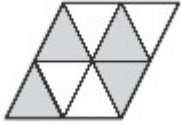*Both fractions must be correctly positioned for the award of the mark.*
Accept a line that is not joined exactly to the correct notch, provided it is closer to the correct notch than any other.
Accept any other clear way of indicating the correct positions, eg fractions written in the correct place on the number line.

[1]

58. Colours 4 complete triangles, eg:

Accept any other clear way of indicating the correct number of triangles, eg ticking.
Accept part-triangles shaded, provided the shaded parts of the triangles are equivalent to 4 whole triangles.
Do not *award the mark if more than 4 whole triangles are shaded in total.*

[1]

59. Tick in square D4

Accept any other clear way of indicating the correct square, eg D4 written anywhere in the space for the question.
Ignore any additional ticks in squares A1 and G7.
Do not *award the mark if more than one square, other than A1 and G7, is indicated unless it clear that the correct square is the child's final choice.*

[1]

60. £1.75

Accept £1.75p, £1-75, £1:75, or £1 75 (with a clear space between 1 and 7).
Do not *accept £175 or £175p.*

[1]

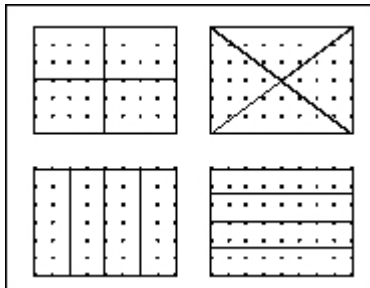**61.** 20 (cherries)

[1]

62. 12

[1]

63. Rectangle divided into 4 equal parts, eg

Accept slight inaccuracies in drawing provided the child's intention is clear, eg

- *a child who has not used a ruler must indicate correct start and end points, even if their lines are not quite correct between these;*
- *a child who uses a ruler must have a line that is correctly oriented, but the ends of the lines may be slightly off the appropriate points.*

[1]

64. Shades 4 more complete squares to bring the total number of shaded squares to 6.

Accept any other clear way of indicating the correct answer, eg ticking.
Accept part squares shaded provided the shaded parts of the squares are equivalent to 4 whole squares.
Do not *award the mark if more than 4 extra squares are shaded unless it is clear that the correct number of squares are the child's final choice.*

[1]

65. 19

[1]

66. 2

The '2' space for the mark to be awarded.

[1]

67. Any two further squares filled in

Accept any other clear way of indicating the two extra squares.

[1]

68. **2 marks** available: **1 mark** if 24 in 3rd oval, and 1 mark if 12 and 6 in 4th and 5th ovals;
1 mark only if incorrect number put in 3rd oval is halved correctly into 4th and 5th ovals.

[2]