ICAS.

PAPER
C

2019
MATHEMATICS

In which one of these patterns do the numbers increase by five?

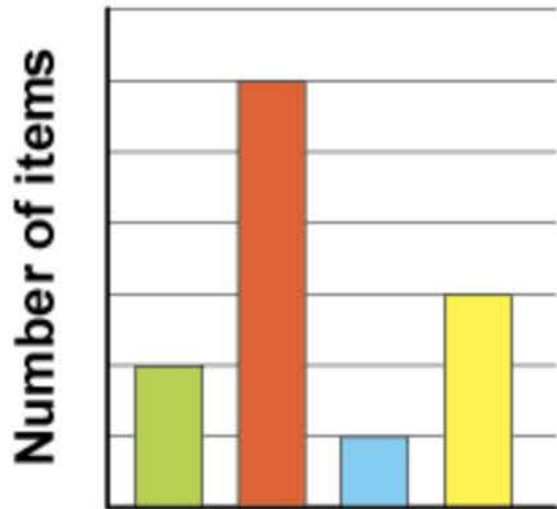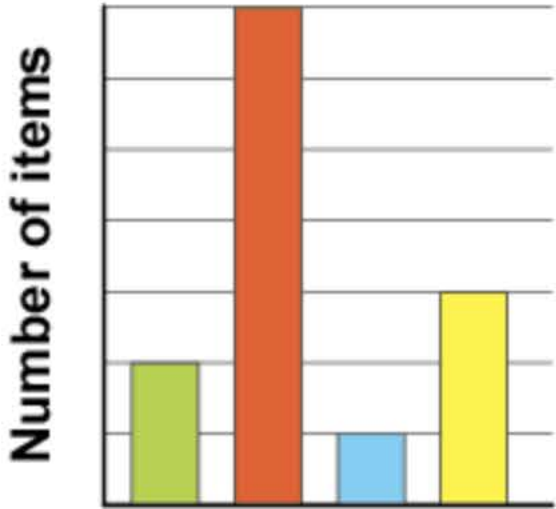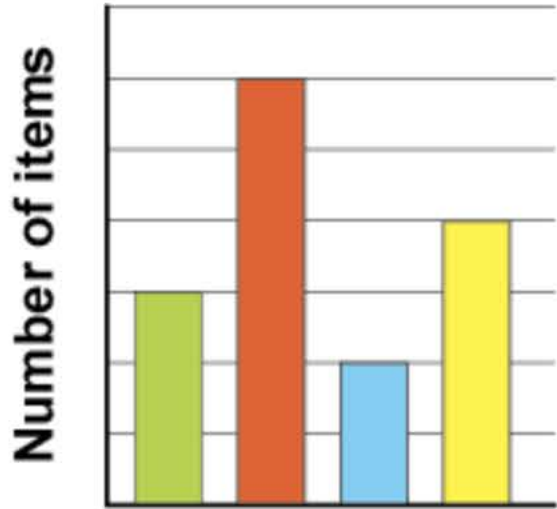| 11 | 15 | 21 | 25 | ... |

| 27 | 32 | 37 | 42 | ... |

| 35 | 45 | 55 | 65 | ... |

| 50 | 51 | 52 | 53 | ... |

Tom tidied his room. He recorded the number of items he put in the toy box.

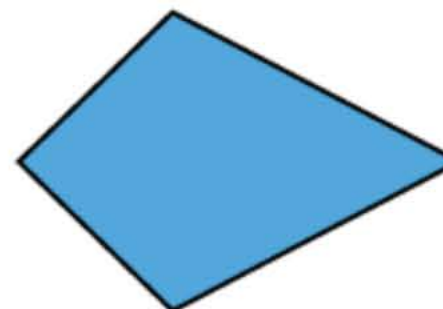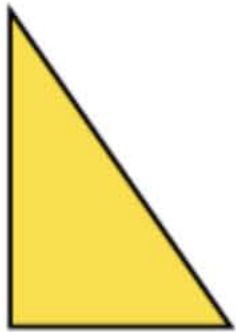| Type of toy	KEY	Number of items
Robot		2
Car		6
Train		1
Truck		3

Tom drew a graph of his results.

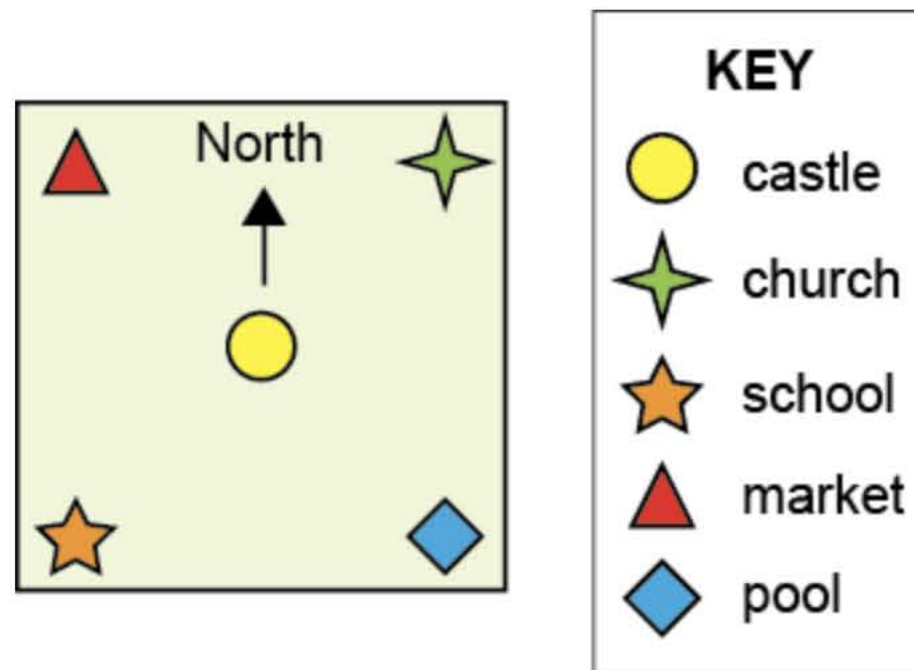Which graph matches the items Tom put in the toy box?
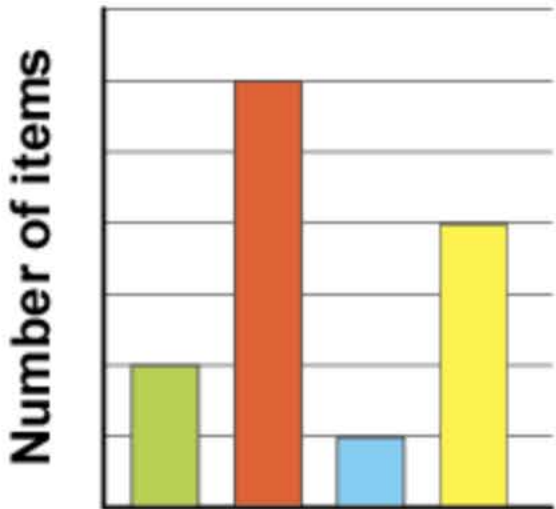
Kim cut each of these shapes in half.

Which shape could **NOT** be cut to make two triangles that are exactly the same?

This is a map of a town.

Kate walked south-east from the castle.

Where did Kate go?

to the market

to the school

to the church

to the pool

Kimi decided to start fishing at the morning high tide. She looked up the times for low and high tide that day.

MONDAY 6 JUNE	
LOW	3:10 am 0.18 m
HIGH	9:01 am 1.30 m
LOW	2:40 pm 0.33 m
HIGH	9:30 pm 1.71 m

At what time should Kimi start fishing?

3:10 am   9:01 am   2:40 pm   9:30 pm

Dedi is in the school play. It starts on 16 June.

It starts in two weeks.

Dedi

On what date did Dedi say this?

2 June

6 June

26 June

30 June

Lisa baked 36 biscuits.

She gave $\frac{1}{2}$ of the biscuits to her friends.

Her family ate $\frac{1}{2}$ of the remaining biscuits.

How many biscuits did she have left?

0

9

18

32
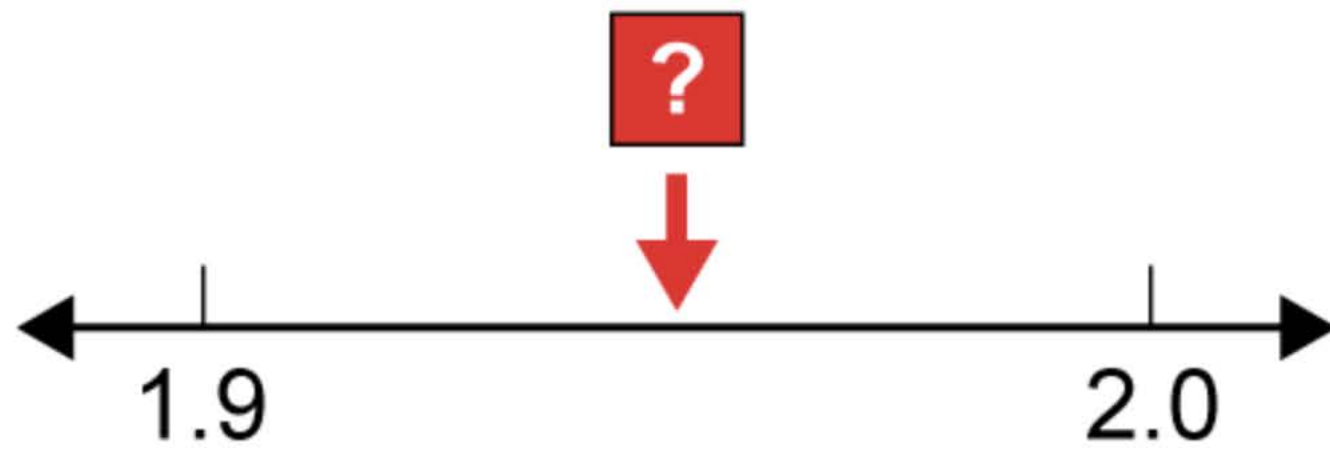
What is the most likely value of [?] ?

1.09

1.90

1.91

1.95

Sarah is fixing her garden fence. The pickets are evenly spaced.
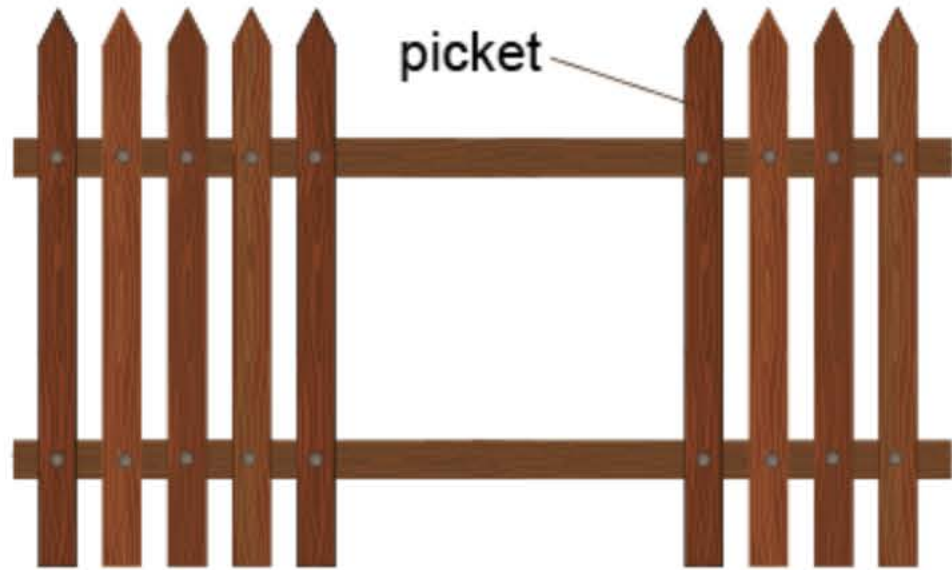
Which of these shows the number of pickets Sarah needs to use to fix the fence?

Sven made a pattern with some cardboard shapes.
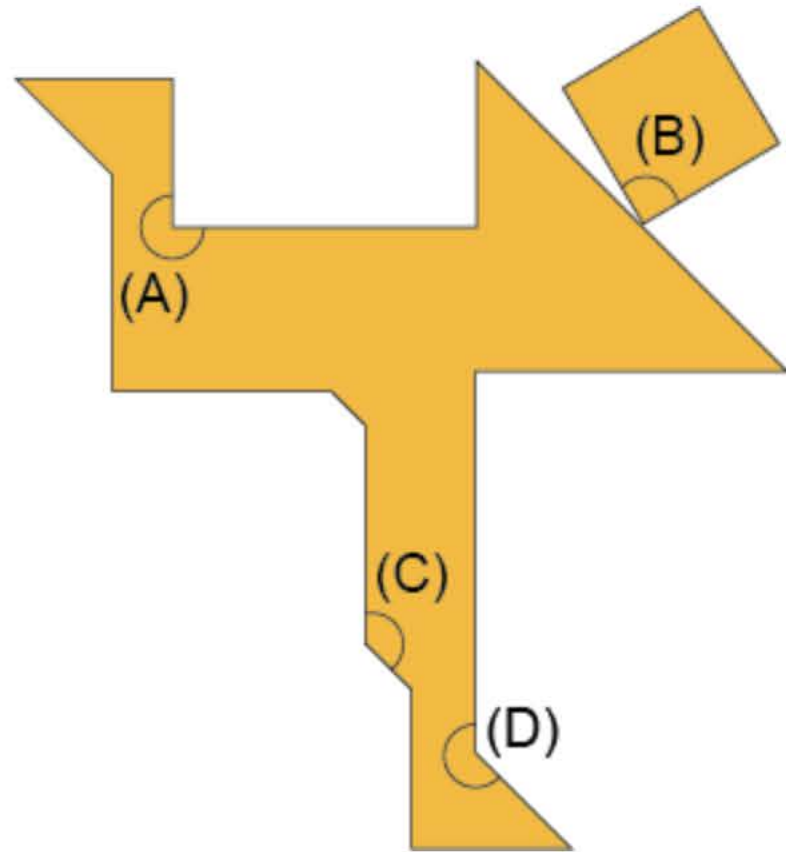
Which angle is the largest?

A

B

C

D

Ajay is making a pattern. He leaves two triangles unshaded in each shape.
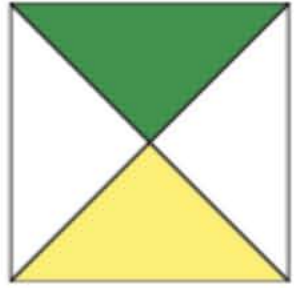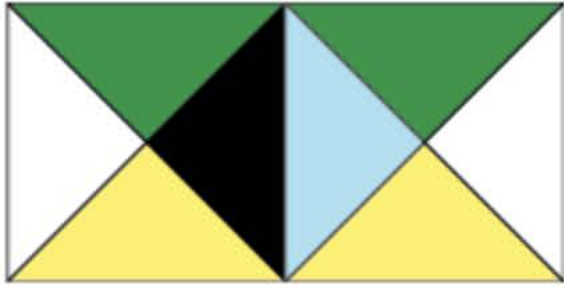
shape 1   shape 2   shape 3

Ajay continues the pattern.

How many triangles must Ajay shade in shape 5?

14

16

17

18

The entrance to Emma's house is 200 metres from the entrance to Jane's house as shown.

What does 1 unit on the map represent?

20 metres

25 metres

40 metres

50 metres

Pete, Sal and Tim shared 30 strawberries.

Pete took 6 strawberries.

Sal then took twice as many as Tim.

How many strawberries did Tim take?

6

8

10

12

In which of these is the shaded area largest?
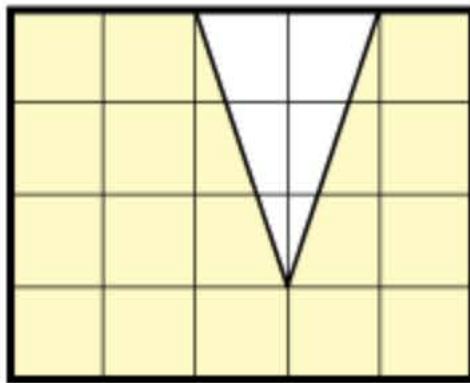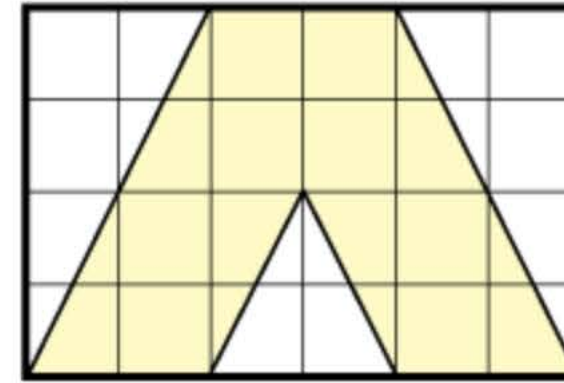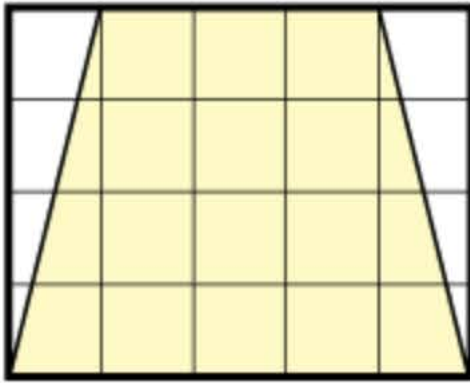
There were 30 students in Kim's class. Each student chose to learn one of these instruments.

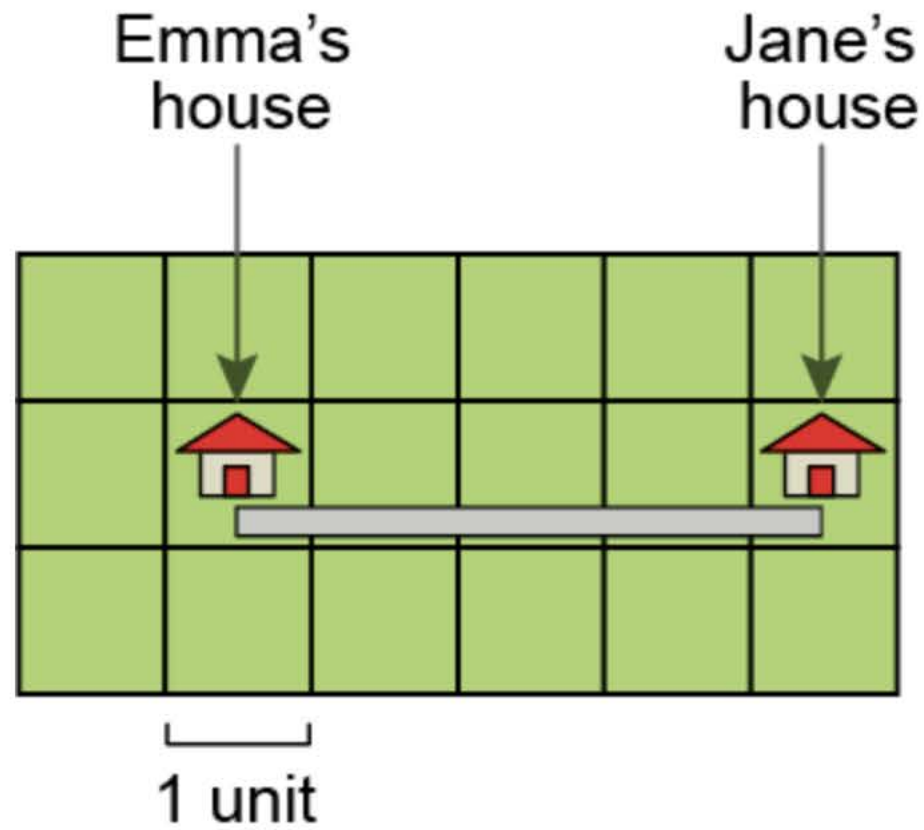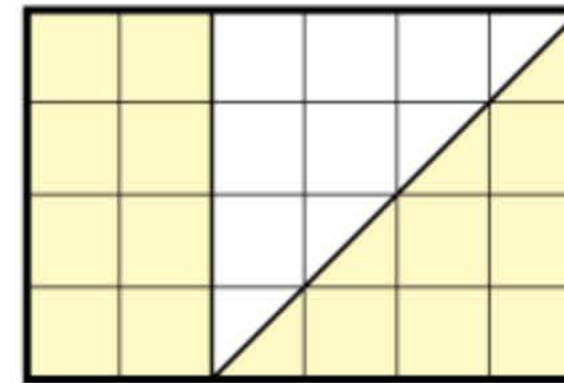|	Number of students
Piano	14
Recorder	
Guitar	?

The number of children who chose the piano was 5 more than the number who chose the recorder.

How many students chose to learn the guitar?

7

9

11

16

Henry has six books.

Maths	English	Science	History	French	Art
2 kg	1 kg	3.5 kg	2.5 kg	1 kg	2.5 kg

He selects four of the books to put in his bag.

The total mass of the books is 7 kilograms (kg).

Which **four** books did Henry place in his bag?

Maths

English

Science

History

French

Art

Toby had a playlist with 6 songs.

Track	Time	
	minutes	seconds
▶ Song 1	2 : 30	
▶ Song 2	1 : 50	
▶ Song 3	2 : 50	
▶ Song 4	1 : 40	
▶ Song 5	4 : 20	
▶ Song 6	7 : 10	

He played the songs in order from the start of Song 1, without pausing.

Which song was playing exactly 7 minutes after Toby started the playlist?
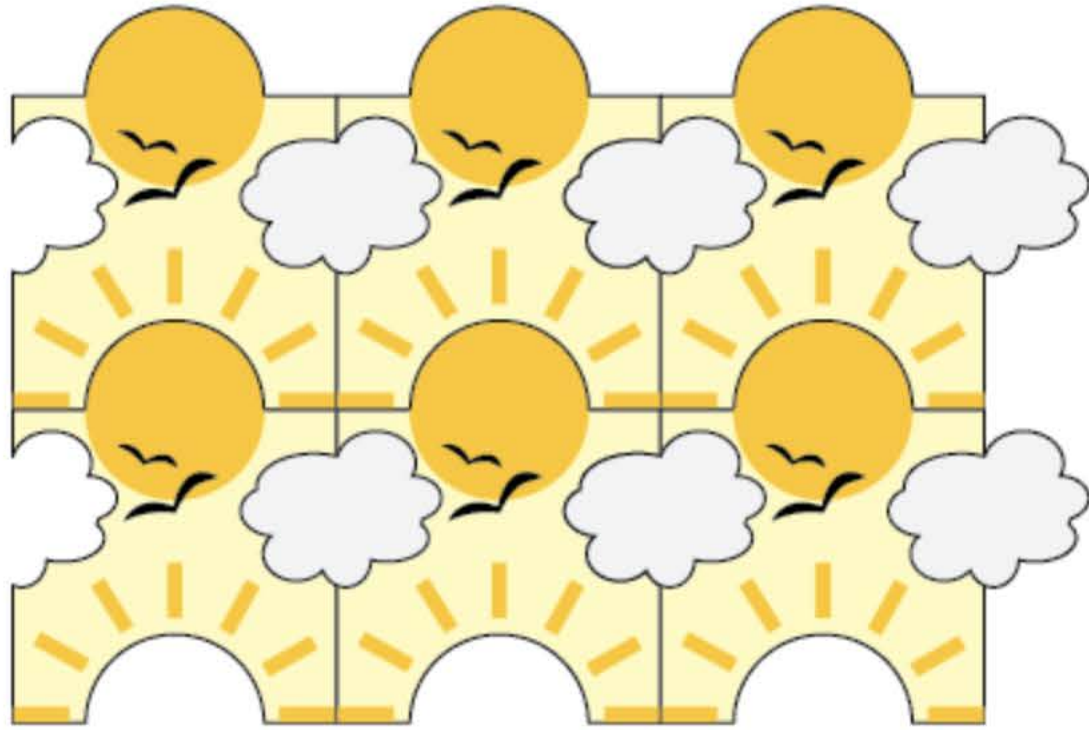
Song 3

Song 4

Song 5

Song 6

Sita painted a shape then made 5 copies of it.

She fitted the 6 shapes together to make this design.

What did the original shape look like unpainted?
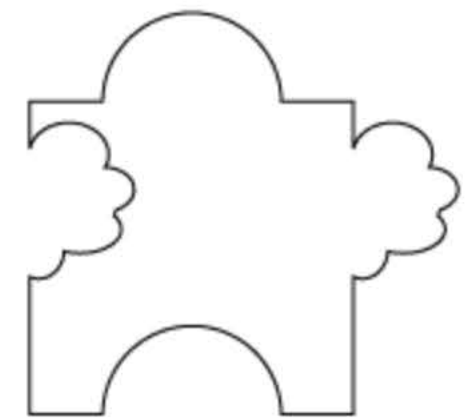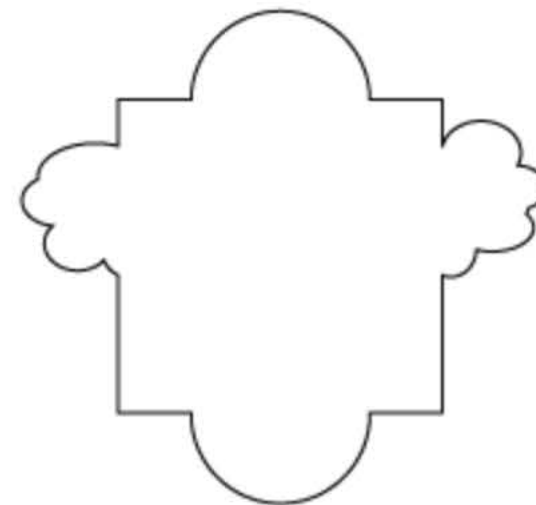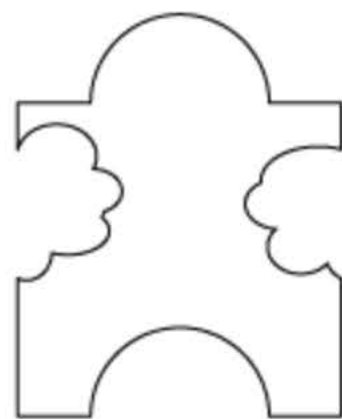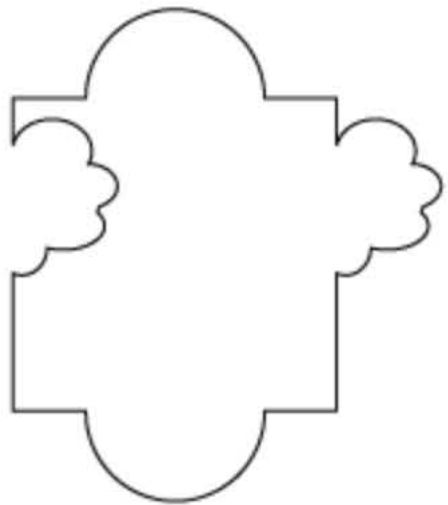
There are 9 marbles in this bag.

KEY
B = blue
G = green
R = red
Y = yellow
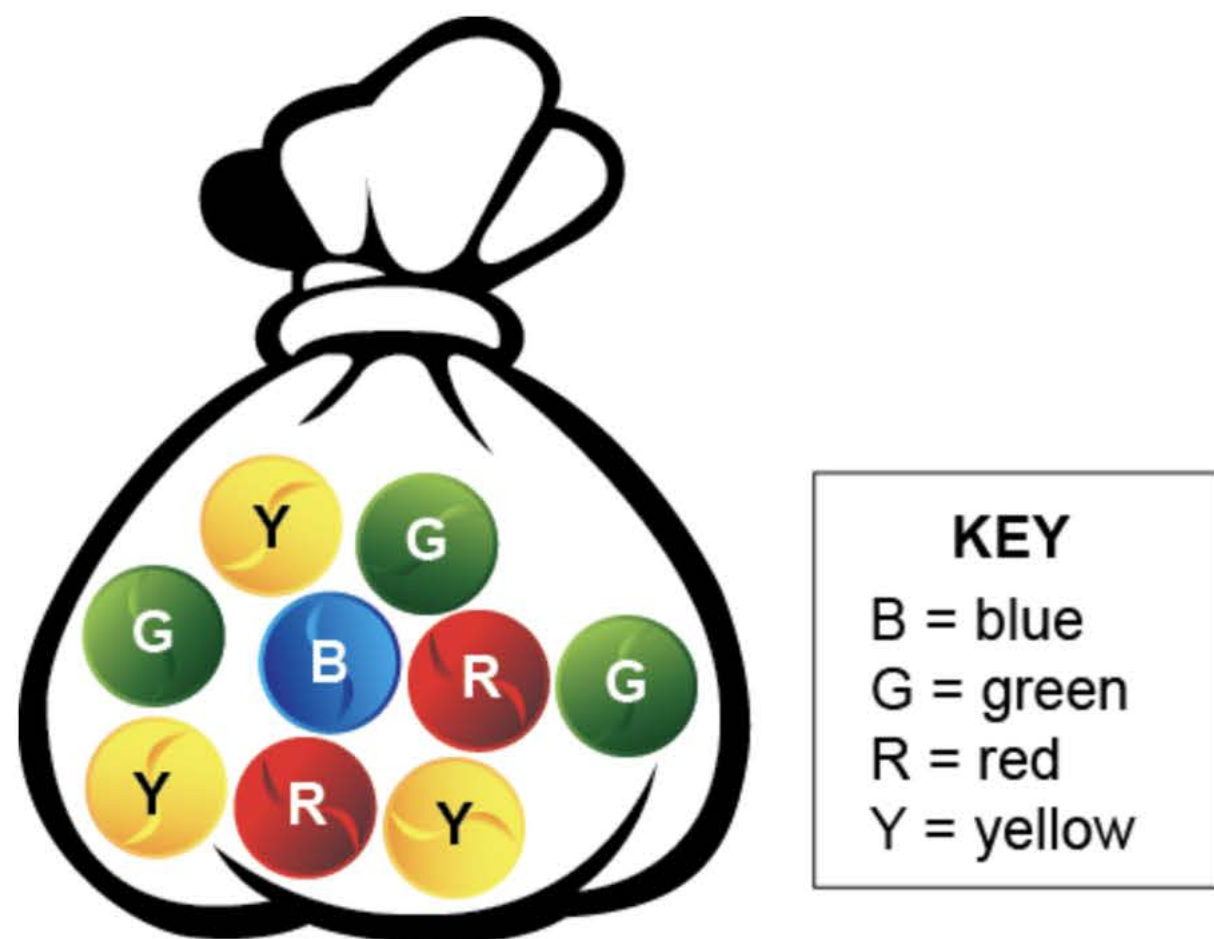
Tom took out a green marble leaving 8 marbles in the bag.

Then it was Julie's turn to take out a marble without looking.

Which two colours does Julie have the same chance of taking out?

yellow and red

green and red

green and yellow

red and blue

Manu followed a rule to create a pattern of figures.
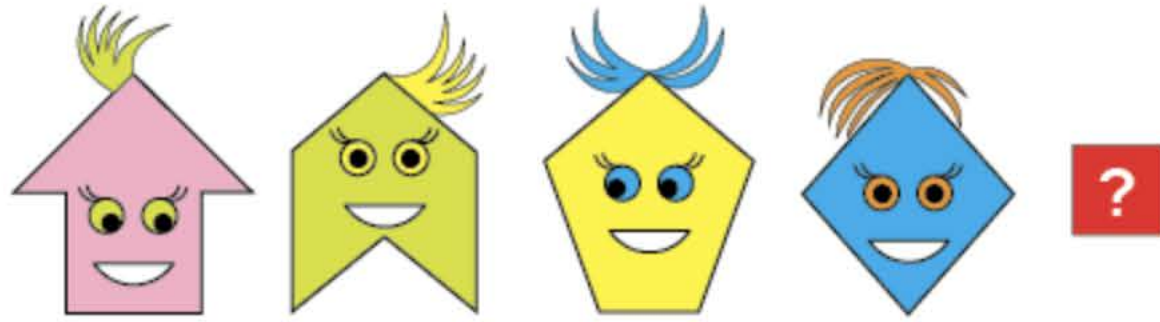
What should be his next figure?
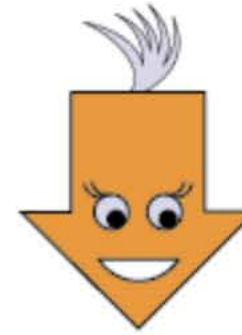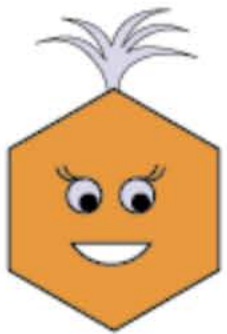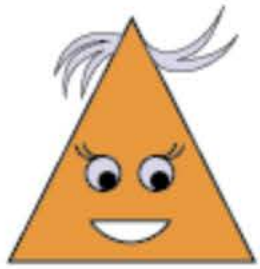
This is a playing card.

This image shows the top half of the card.

What must be done to this image in order to create the bottom half of the card?

Flip it over the horizontal line.   Flip it over the vertical line.

Rotate it a half turn.   Rotate it a quarter turn.

Kate is multiplying 36 by 3 using a number line.

Which number line will give Kate the **WRONG** answer?

+30   +30   +30
                        +6 +6 +6

0

+35   +35   +35
                              +3

0

+50   +50   +50
                                -42

0

+40   +40   +40
                                -4

0
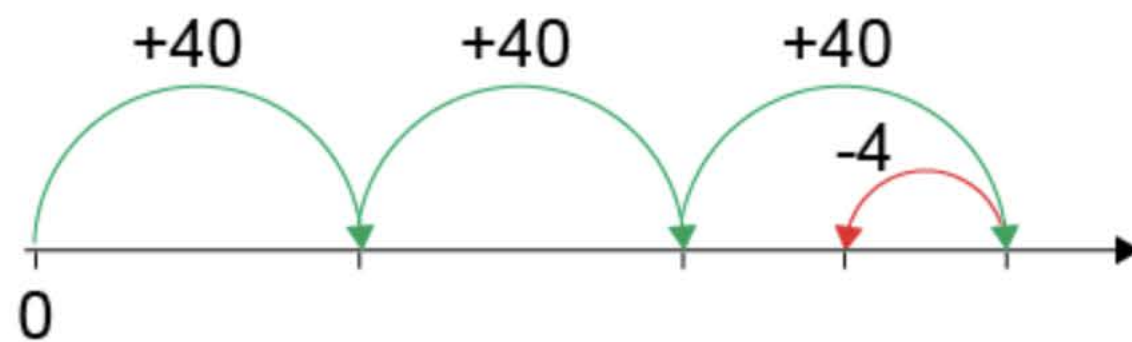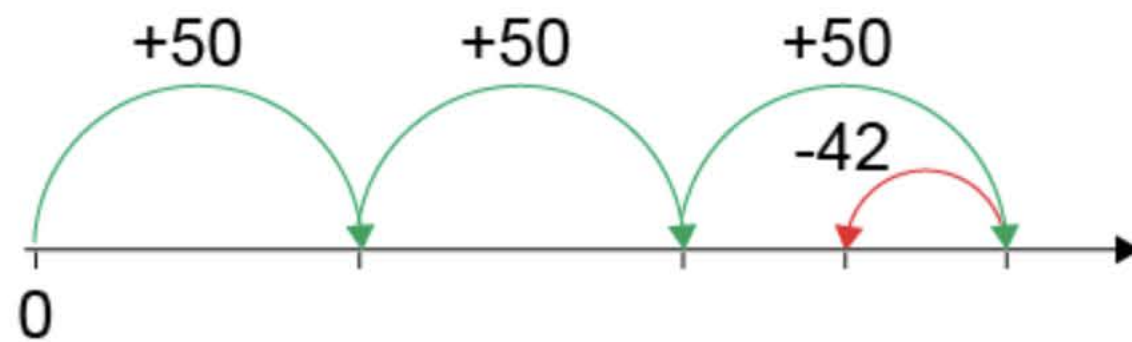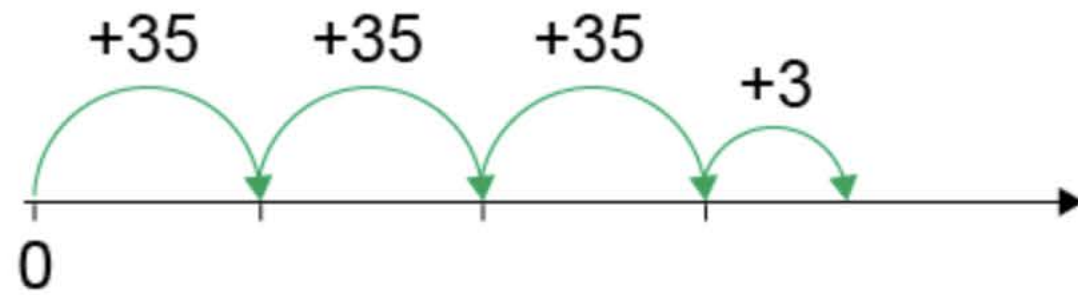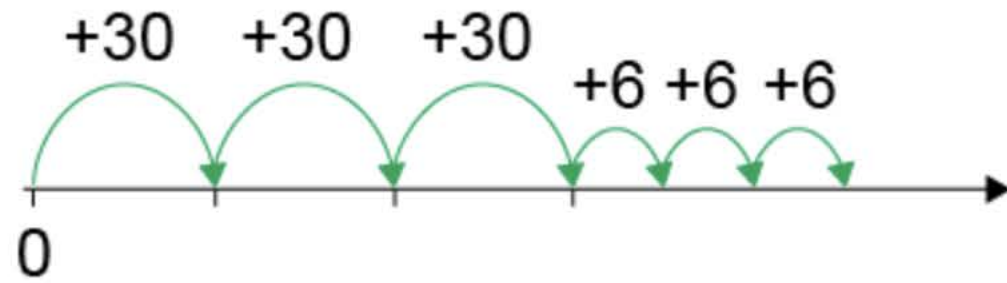
Mike, Ben and Sam were the top scorers in a basketball game. The coach counted the number of times that each boy shot a basket worth 1, 2 or 3 points.

Name	Number of baskets			Total score
	1 point	2 points	3 points	
Mike	5	4	0	
Ben	9	0	1	
Sam	1	1	3	

Then he calculated their total scores.

Which of these statements is **TRUE**?

Mike's total score was even.

Ben and Sam had the same total score.

Mike's total score was the lowest.

Sam's total score was odd.

Jack's clock has been set to the wrong time.

This picture shows the clock when Jack left home.

Actual time
8:25 am

What time did the clock show when Jack arrived home at 4:05 pm?

7:05   6:25

6:20   6:15

⭐ + 💗 = 7200

| 10 x ⭐ | + | 10 x 💗 | = | ? |

What value must **?** be?

720 000

72 000

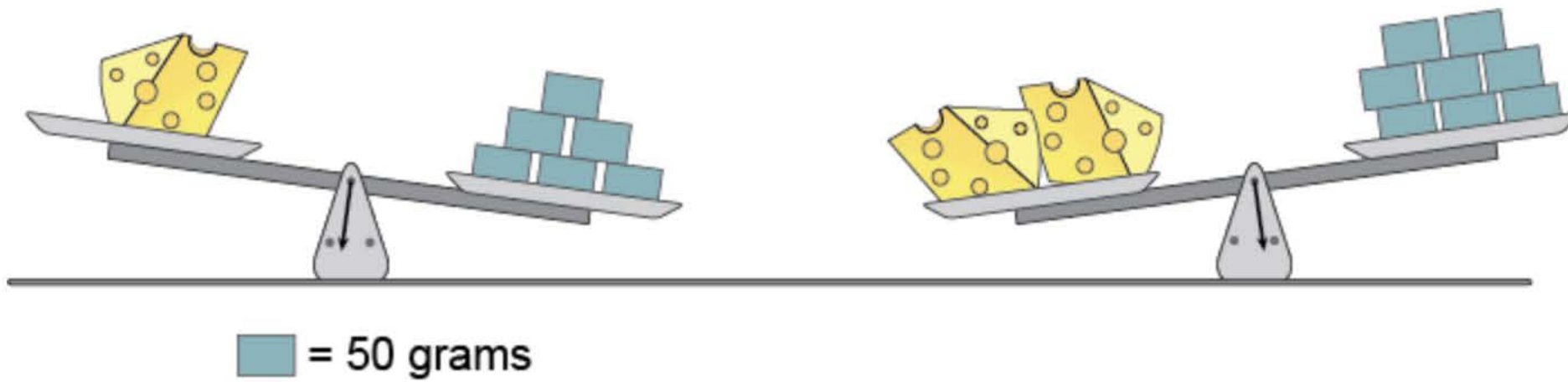720

72

James used some blocks and a balance to estimate the mass of one block of cheese.

■ = 50 grams

What could be the mass of ?

150 grams

200 grams

250 grams

300 grams

At a London market, Jill bought three pendants and a chain for £70.

She then sold two of the pendants for a total of £36. This was a £2 profit per pendant.

How much did Jill pay for the chain?

£22

£19

£17

£16

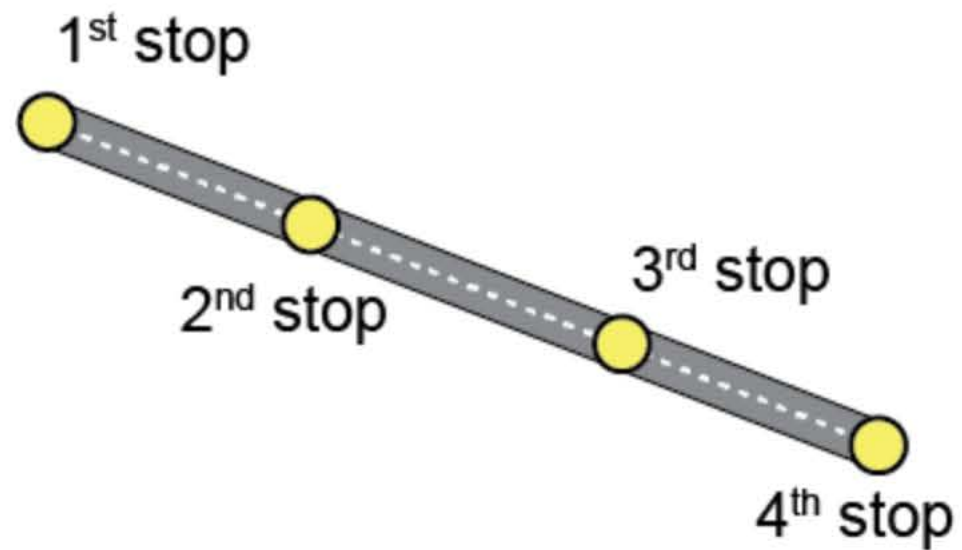Lin drew a rough map to help her find the distances between four bus stops along a country road.

The distance between the 1st stop and the 3rd stop is 22 kilometres.

The distance between the 2nd stop and the 4th stop is 25 kilometres.

The distance between the 1st stop and the 4th stop is 33 kilometres.

What is the distance between the 2nd stop and the 3rd stop, in kilometres?

8

11
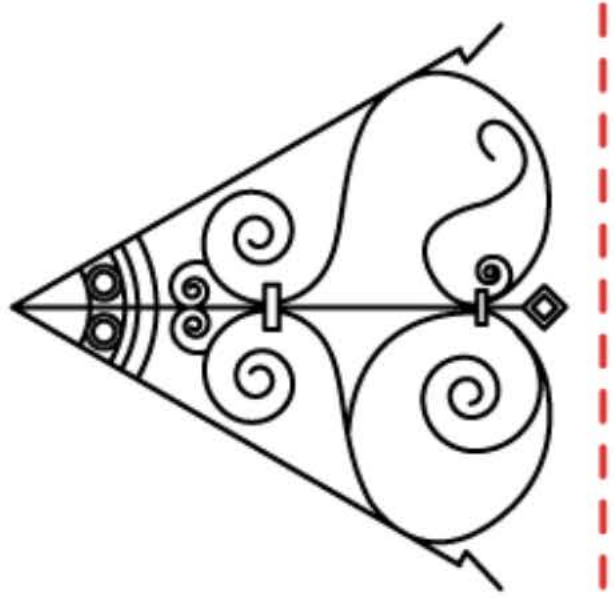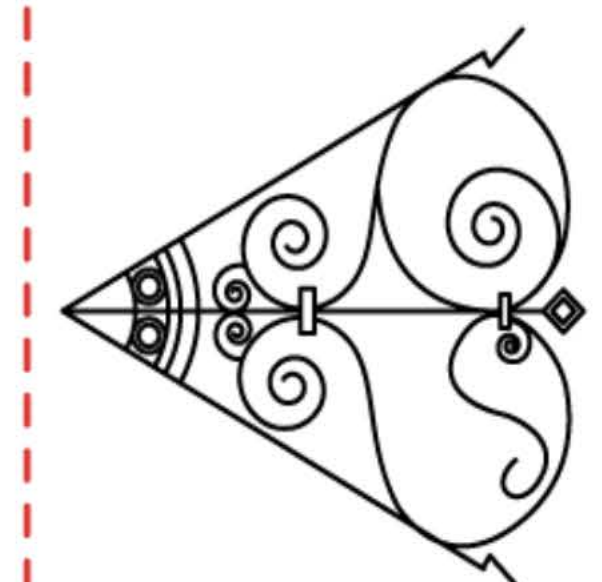
14

17

This shape is reflected across the dotted line.

Which of these is the reflected shape?
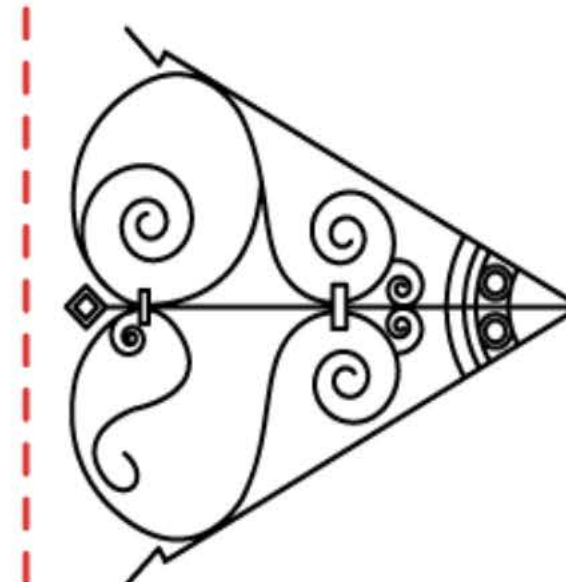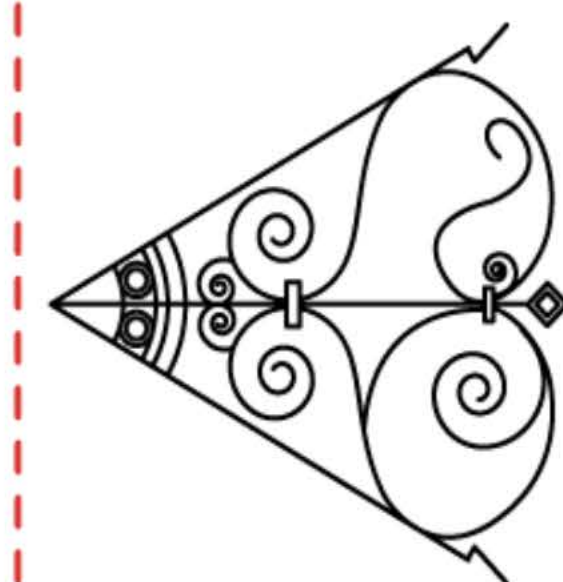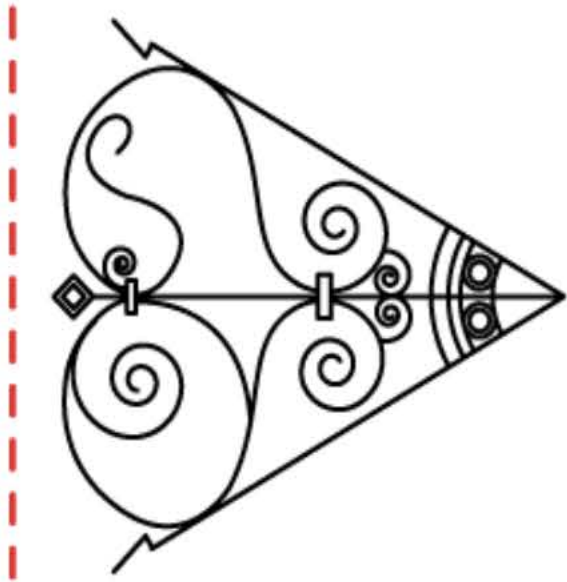
Sam was practising free kicks for soccer. She had ten attempts from each of the four numbered positions using the foot shown on the first diagram.

Sam drew a graph of the results.
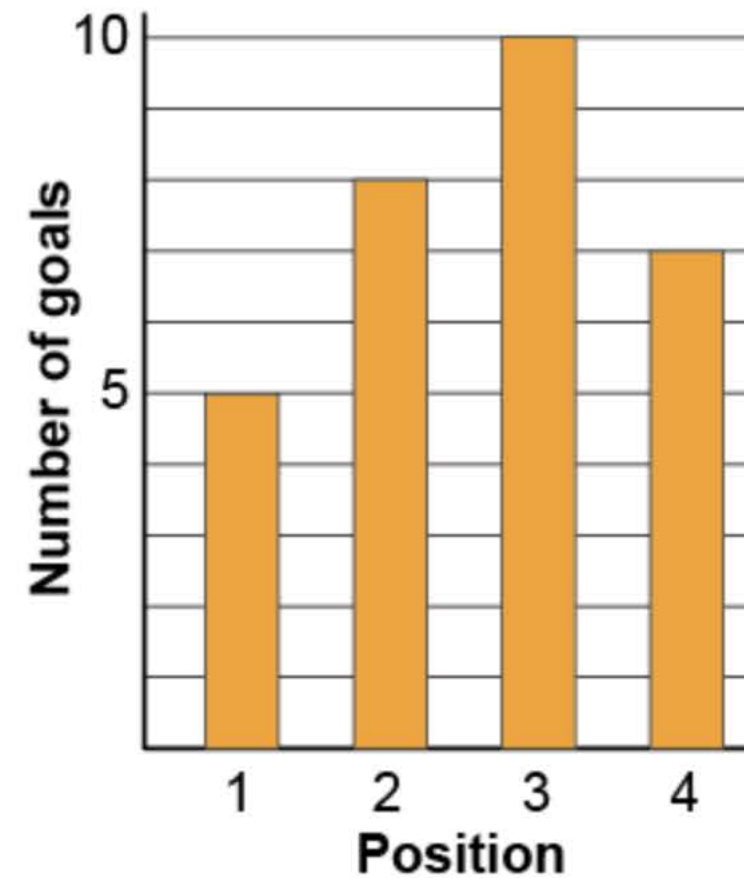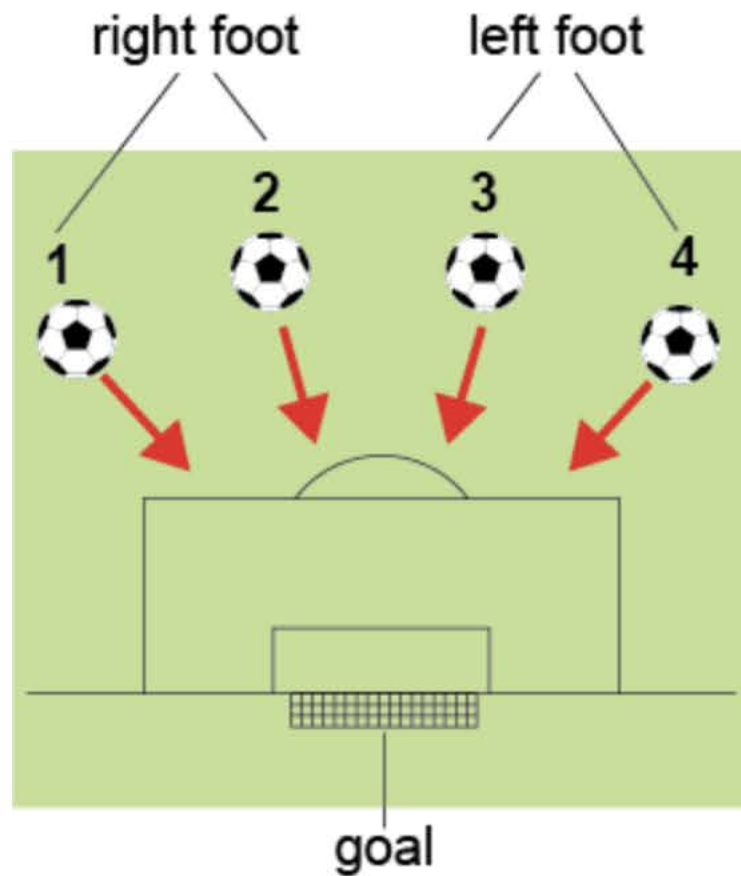
Which statement about her results is **not** true?

Sam scored a total of 30 goals from 40 attempts.

Sam was more accurate with her left foot than with her right foot.

Sam missed more goals from the sides than from in front of the goal.

Sam scored twice as many goals from in front of the goal as from the sides.

Kim had these three shapes.
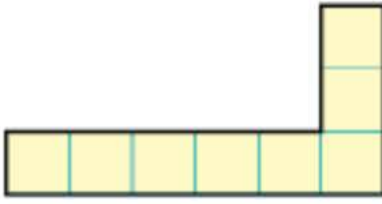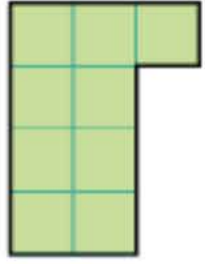
She overlapped them to make a shape with the smallest possible area.

Which shape did Kim make?
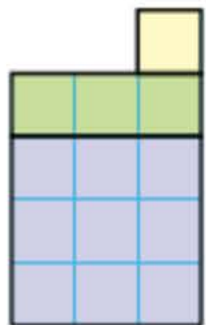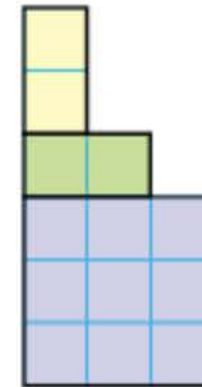
Rita had a banana, an apple and an orange.

She used the scales to weigh the fruit, two pieces at a time.
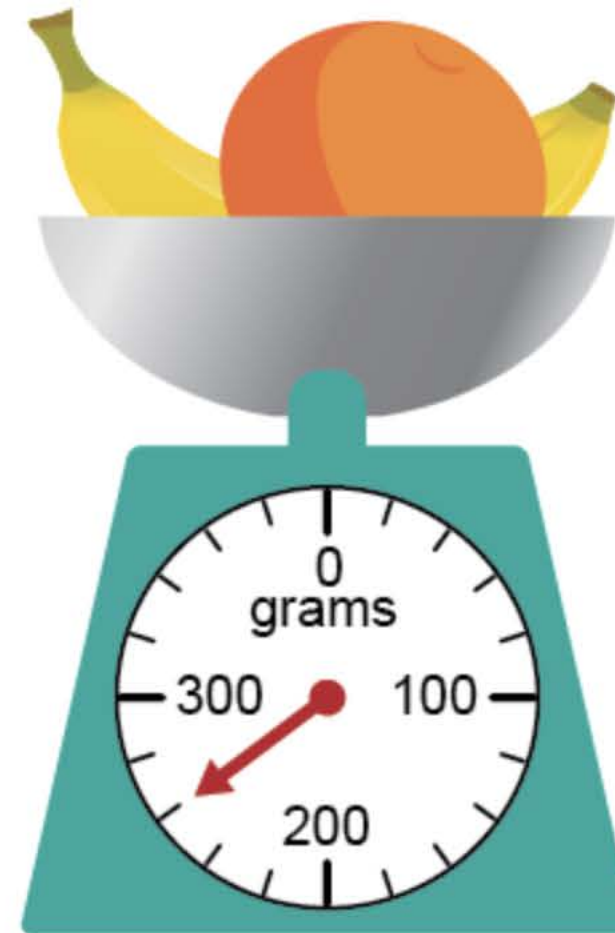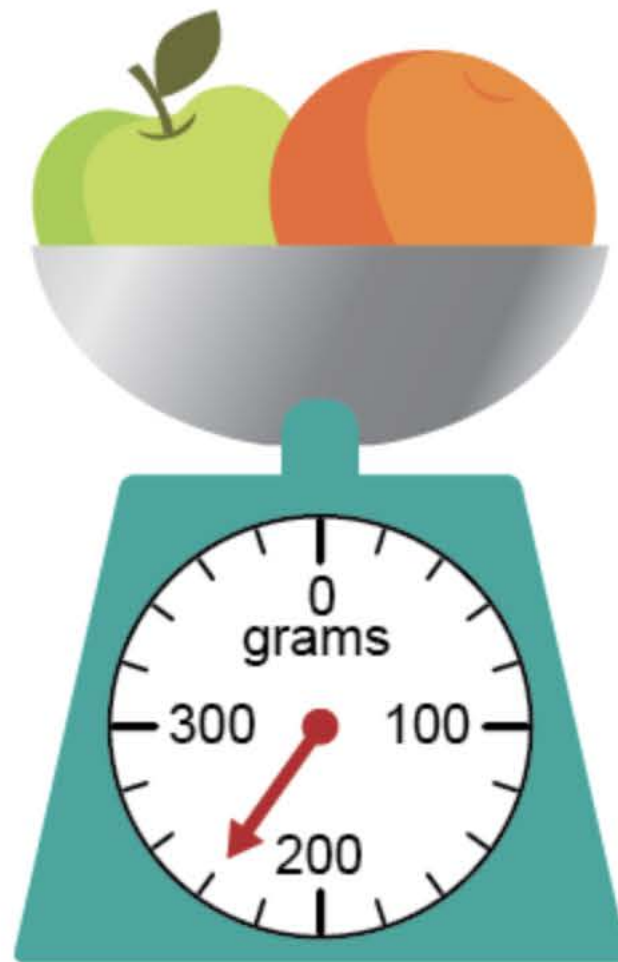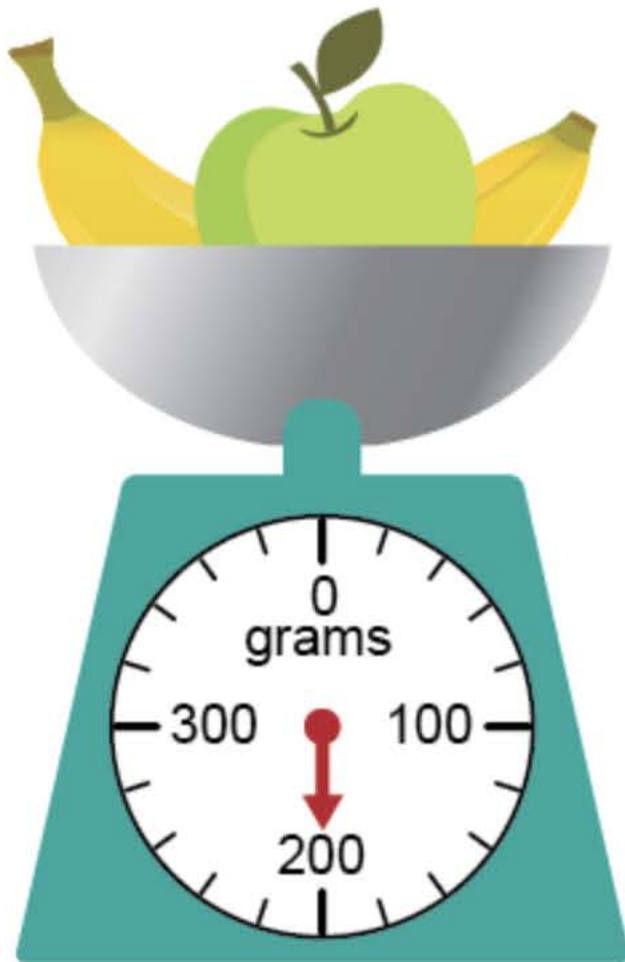
How many grams does the orange weigh?

150

125

110

105

Three bales of hay are enough to feed seven horses for one day.

A goat needs one-quarter of the amount of hay that a horse needs.

Mrs Brown has 56 goats.

How many bales of hay does Mrs Brown need each day to feed her goats?

6

8

14

24

Oscar was swimming in a 25-metre pool.

He swam 10 lengths of the pool every 5 minutes.

Oscar swam at this pace for one hour.

How far did he swim?

1250 metres

1500 metres

2500 metres

3000 metres

Archie made a 3-D model. He drew two pictures of the model when viewed at an angle and viewed from above.
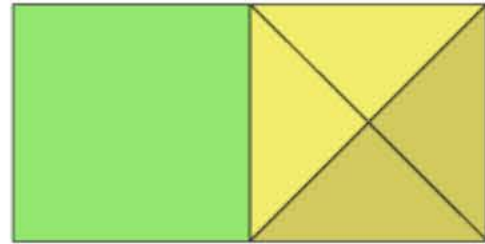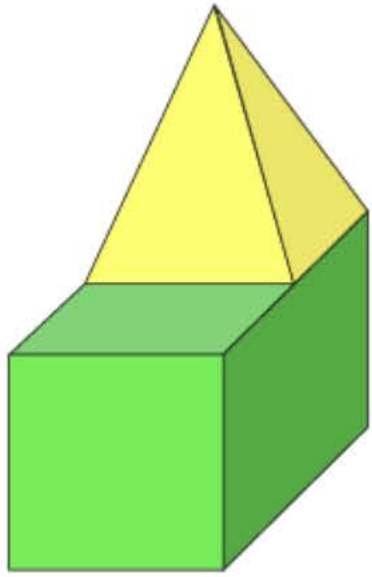
Which of these is the net of the model Archie made?
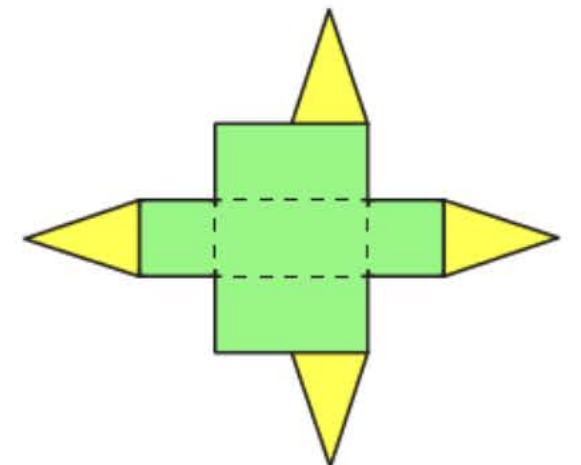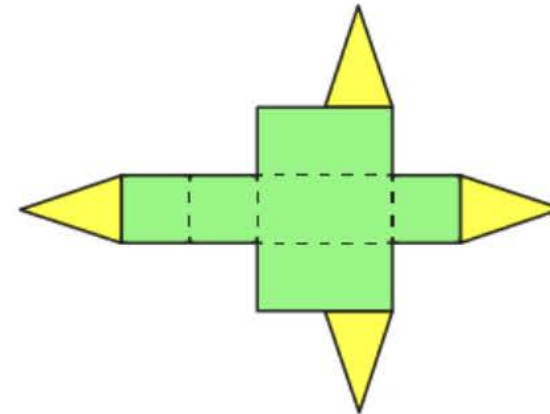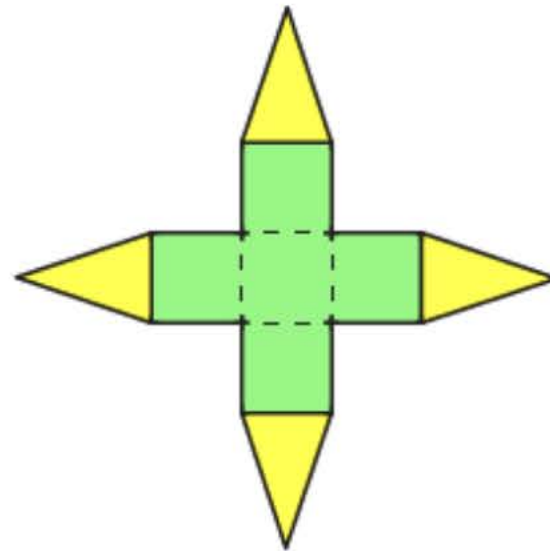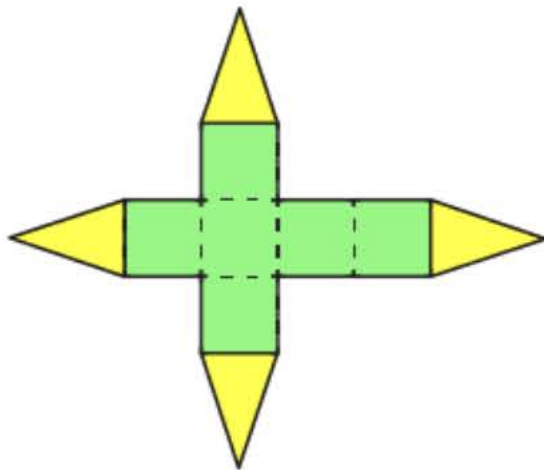
Lin knew her grandmother was aged between 50 and 60.

She wanted to work out her grandmother's age.

Lin asked her grandmother to follow these instructions:

- multiply the tens digit of your age by 5
- add 4
- double your answer
- add the units digit of your age
- tell me your answer.

What number did Lin need to subtract from her grandmother's answer to work out her age?

Mark and Jack are brothers. They share each other's clothes if the clothes fit.

| Mark's clothes | Jack's clothes |
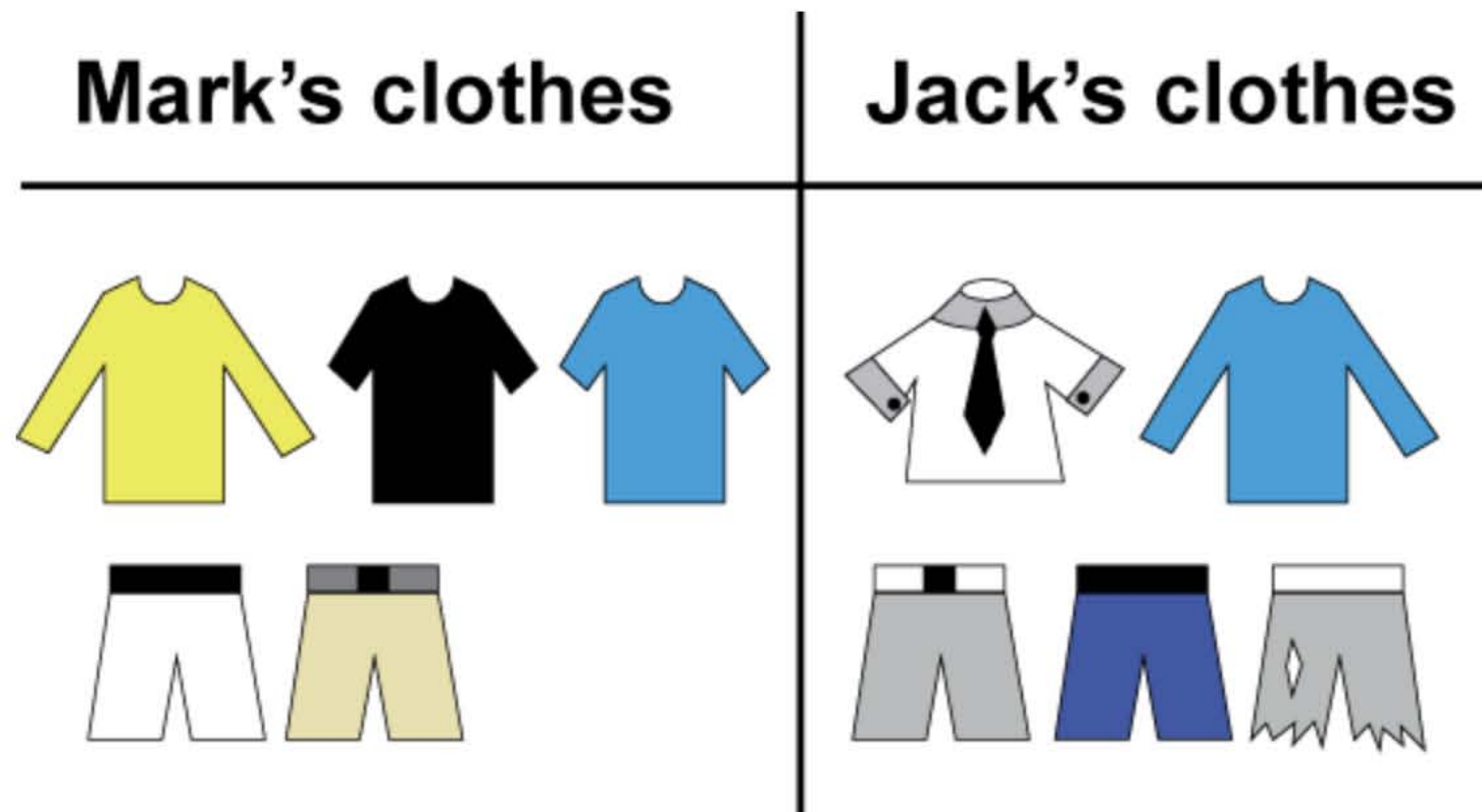
Jack can wear Mark's shirts but not his pants.

Mark cannot wear any of Jack's clothes.

An outfit consists of a shirt and pants that both fit.

How many different outfits do the brothers have between them?

_____ outfits

There are three units that can be used to record temperature: Fahrenheit ($°F$), Celsius ($°C$) and Kelvin (K).

This table can be used to convert between these units of temperature by working out the value of the star.

Unit	Conversion
Fahrenheit	$\bigstar = °F + 459$
Kelvin	$K = \dfrac{\bigstar}{9} \times 5$
Celsius	$°C = K - 273$

Rocks can melt to become lava at 1350 $°F$.

What is this temperature in $°C$?

$°C$

This is a drawing of a solid prism which was built using identical cubes.
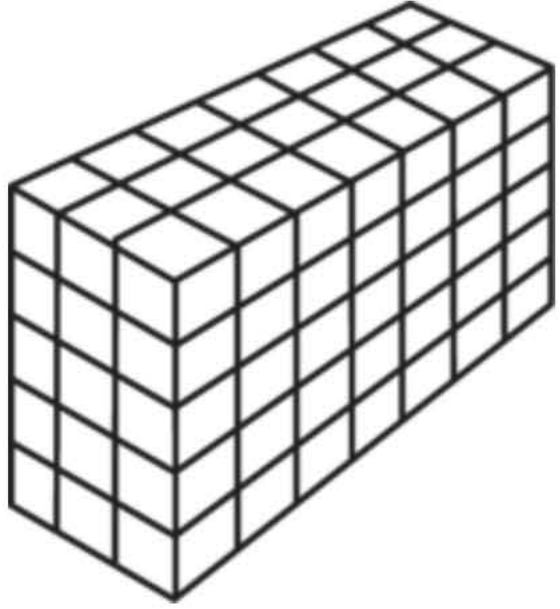
Some of the cubes used to build the prism cannot be seen in the drawing.

How many cubes cannot be seen in the drawing?

| 34 | 48 | 57 | 60 |

Sam arranged 55 golf balls to form this pattern of triangles.

3   6   10   15   21

He made the next two triangles in the pattern.

How many golf balls did Sam use altogether?

golf balls

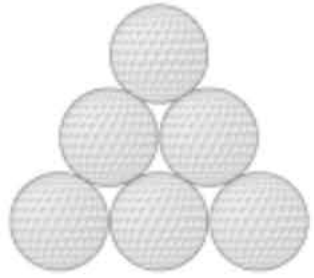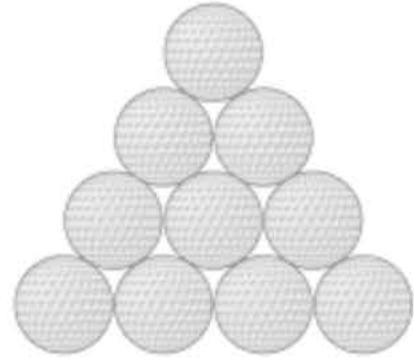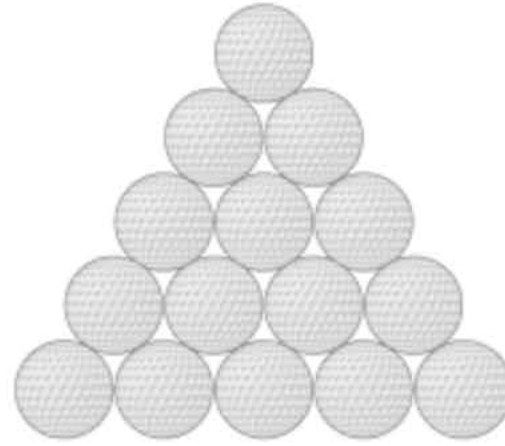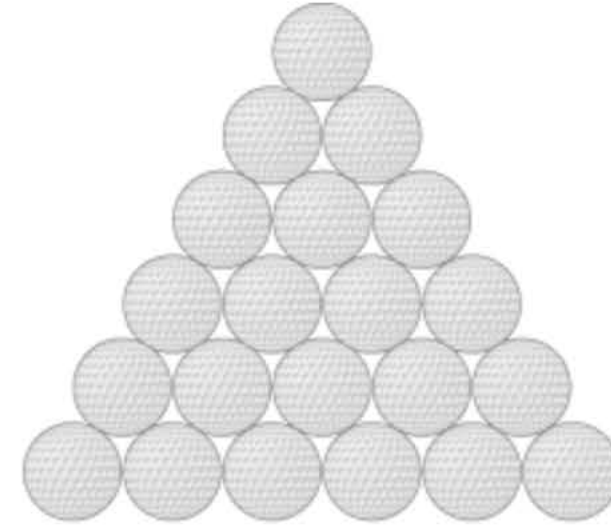| Question number	Correct answer	Mark	Category	Descriptor
1	B		Algebra & Patterns	Identify the pattern that is increasing by the same number
2	C		Chance & Data	Match a column graph to a data set
3	A		Space & Geometry	Identify the shape that will not halve to produce identical triangles
4	D		Space & Geometry	Read a legend and interpret a direction on a map
5	B		Measures & Units	Read and interpret a chart to solve a time problem
6	A		Measures & Units	Convert weeks to days to solve a calendar problem
7	B		Number & Arithmetic	Find a simple fraction of a quantity using an array
8	D		Number & Arithmetic	Identify a decimal number on number line
9	C		Measures & Units	Estimate a length to complete a shape
10	A		Space & Geometry	Identify the largest angle in a composite shape
11	D		Algebra & Patterns	Complete a pattern that adds on the same number each time
12	D		Space & Geometry	Calculate the scale on a map given the distance between two objects
13	B		Number & Arithmetic	Solve a word problem involving subtraction and halving
14	C		Measures & Units	Identify the shape with the largest area
15	A		Chance & Data	Complete a table given comparative information
16	B, D, E, F		Number & Arithmetic	Choose four items with a given combined mass
17	A		Measures & Units	Add a number of time intervals together
18	D		Space & Geometry	Identify a tessellating shape
19	B		Chance & Data	Determine the likelihood of an event given certain conditions
20	A		Algebra & Patterns	Identify the next shape in a geometric pattern
21	C		Space & Geometry	Rotate a shape about a point
22	D		Number & Arithmetic	Use partitioning to multiply a large number by 3
23	B		Number & Arithmetic	Complete a table involving multiplication and addition and interpret the results
24	B		Measures & Units	Solve a problem involving am and pm time
25	B		Algebra & Patterns	Apply an understanding of place value to solve a multiplication problem
26	C		Measures & Units	Solve a measurement problem involving balance scales and inequalities
27	A		Number & Arithmetic	Solve a problem involving subtraction and division
28	C		Number & Arithmetic	Calculate the distance between two points using addition and subtraction
29	A		Space & Geometry	Identify the shape of a reflected pattern
30	D		Chance & Data	Interpret two diagrams and identify the incorrect response

Question number	Correct answer	Mark	Category	Descriptor
31	B		Space & Geometry	Identify the smallest shape that can be formed by overlaying three shapes
32	A		Measures & Units	Calculate the mass of an object when weighed on a scale with other objects
33	A		Number & Arithmetic	Solve a problem involving factors and multiples
34	D		Measures & Units	Solve a complex problem involving distance and rates
35	C		Space & Geometry	Identify the net that matches the composite solid
36	8		Number & Arithmetic	Follow steps to solve a numerical problem
37	21		Chance & Data	Find the total number of combinations of shirts and shorts
38	732		Algebra & Patterns	Use a table and substitution to convert between different units of temperature
39	B		Space & Geometry	Identify the number of cubes in a 3D model that cannot be seen in a drawing
40	119		Algebra & Patterns	Add two more triangular numbers to a given total

You have completed this practice test.

Your mark is | / 40

Click here to reset the test and try again.

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