PAPER

D

2019
MATHEMATICS

This is a map of a town.

KEY

⬤ castle

✦ church
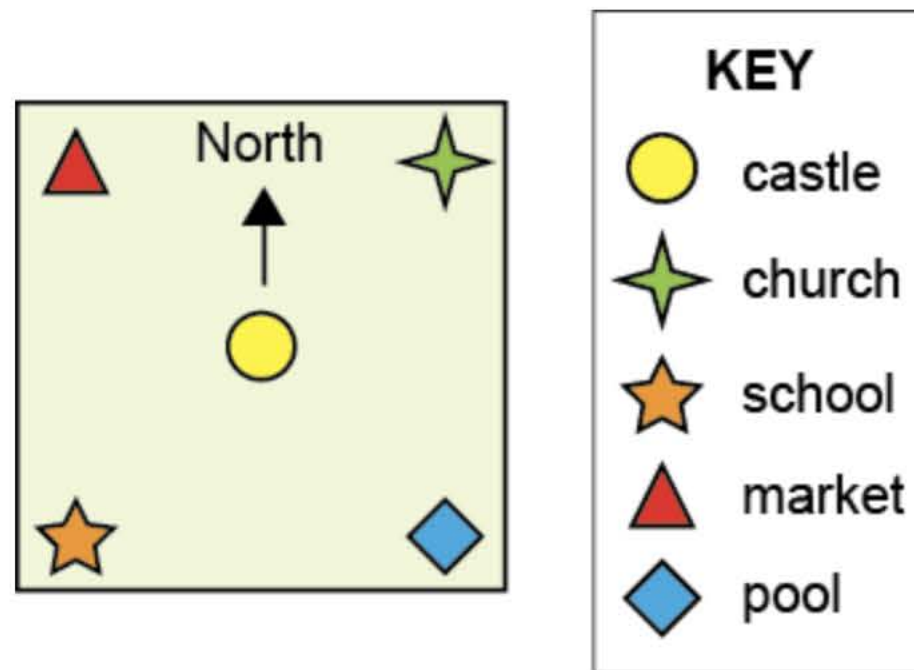
★ school

▲ market

◆ pool

Kate walked south-east from the castle.

Where did Kate go?

to the market

to the school

to the church

to the pool

$8 \times 10 =$ **?** $\times 5$

What value must **?** be?

4

16

40

80

ICAS.

The table shows the final scores of four teams in a competition.

Team	Points
Blue	547
Red	348
Green	469
Yellow	320

How many more points were scored by the team that came first than the team that came third?
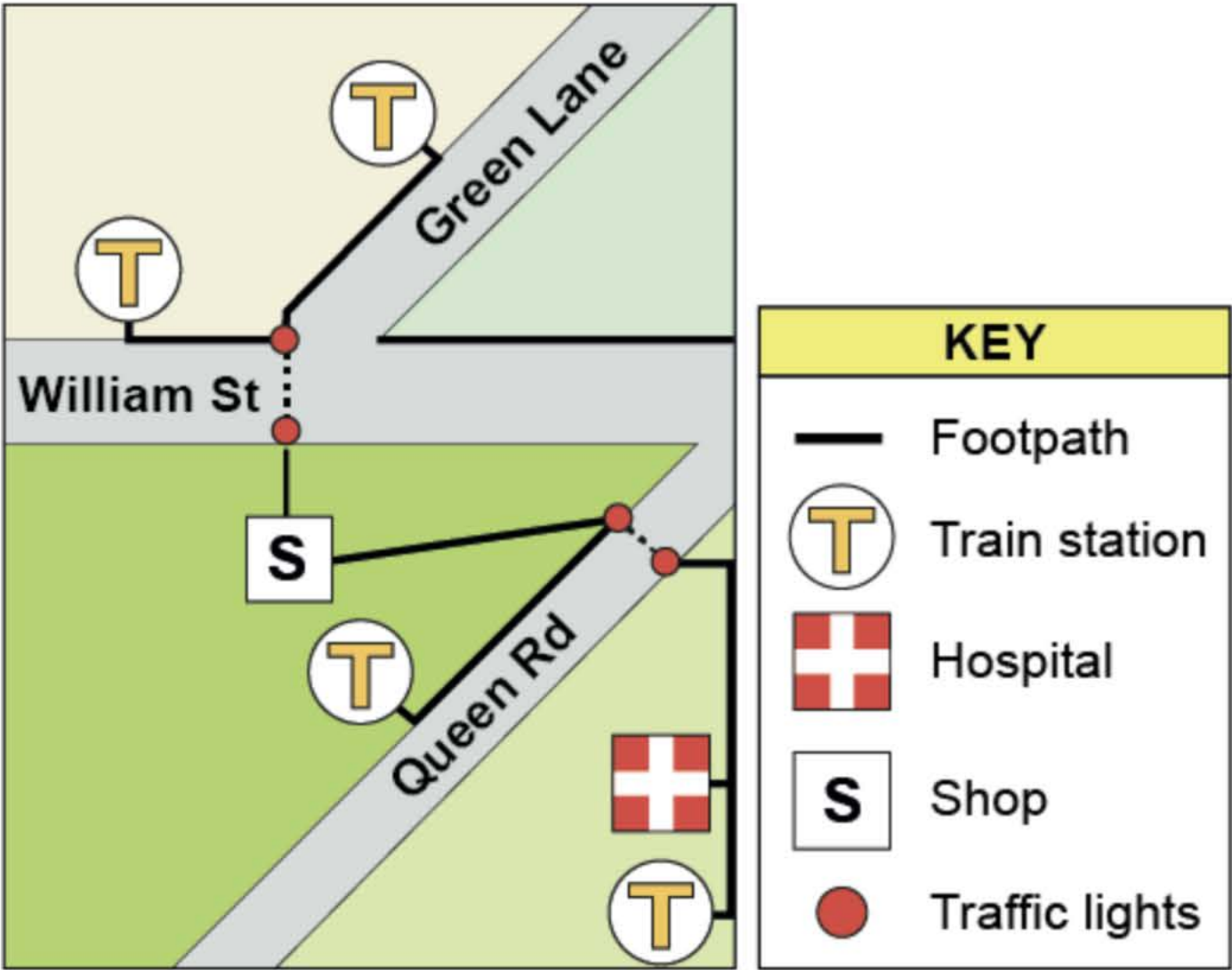
227   201   199   78

Bill stopped at the shop, then walked to the nearest train station.

He always stays on the footpath and crosses the road at traffic lights.

KEY	
—	Footpath
(T)	Train station
✚	Hospital
S	Shop
●	Traffic lights

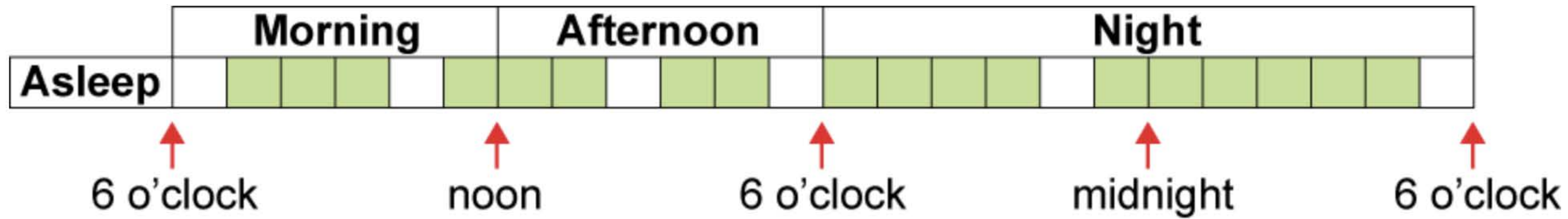Which train station did Bill walk to?

the station on Green Lane

the station on William St

the station on Queen Rd

the station near the hospital

Lien drew up a table. He shaded the hours when his baby sister was asleep over a 24-hour period.

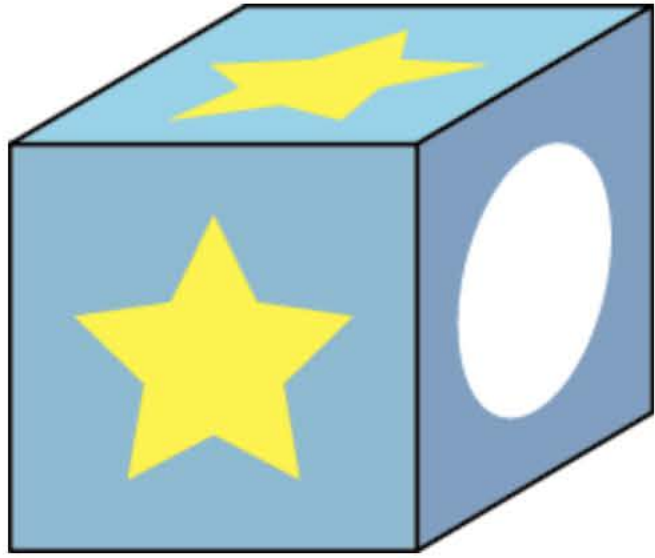During what fraction of the night was Lien's baby sister asleep?

$\dfrac{5}{6}$ $\dfrac{3}{4}$ $\dfrac{5}{12}$ $\dfrac{1}{5}$

Alana had a cube. She painted one shape on each face. Alana painted 2 circles, 3 stars and 1 cross.

Alana rolled the cube along a table.

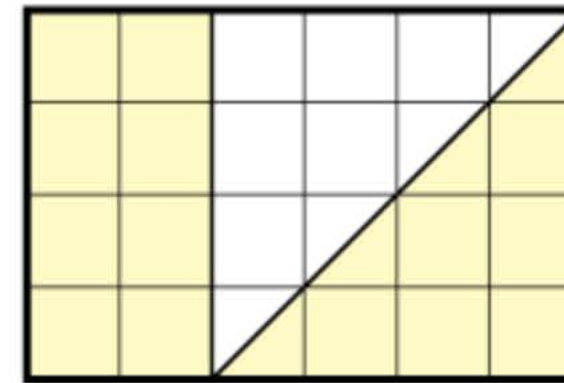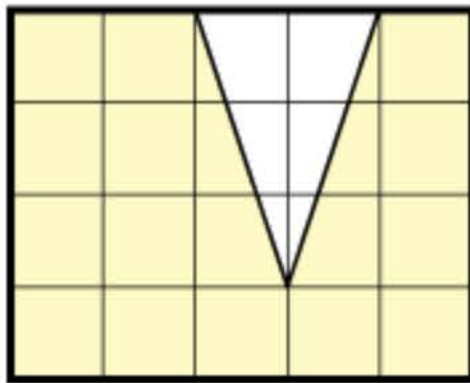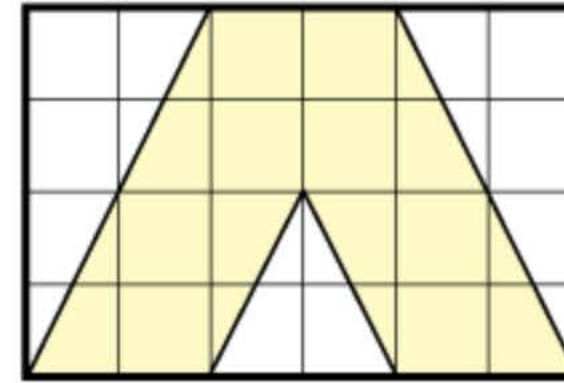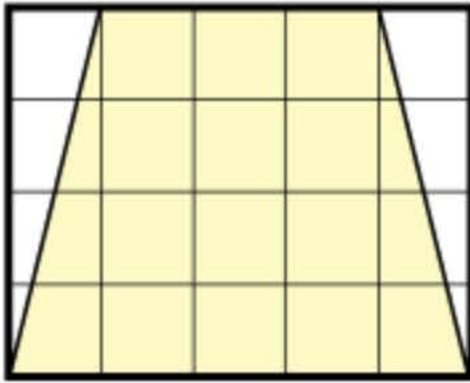What is the probability that the cube finished with a star on top?

$\frac{2}{6}$

$\frac{3}{6}$

$\frac{2}{3}$

$\frac{3}{3}$

In which of these is the shaded area largest?

Vin wrote down four different single-digit numbers. Then he multiplied all of these numbers together.

Which of these could be his answer?

18

21

28

30
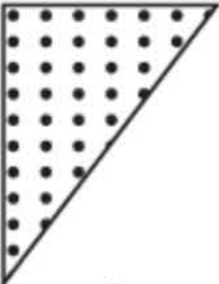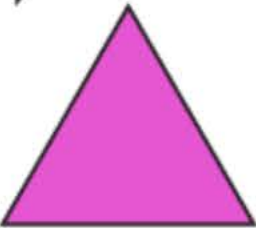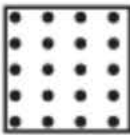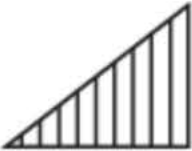
ICAS.

Sally had 12 plastic pieces. First she grouped them by shape.

Triangle	Square	Rectangle

Then she grouped them another way. Each new group had a **DIFFERENT** number of plastic pieces.

How did Sally group the plastic pieces this time?

All sides equal	Not all sides equal

Black	Pink	Striped	Dotted

4-sided shape	3-sided shape

Shaded	Patterned

Harry is converting millimetres to metres.

3500 millimetres = [**?**] metres

What working must he use to make this conversion?

$3500 \div 100$

3500×100

$3500 \div 100 \div 10$

$3500 \times 100 \times 10$

Mr Martins opened a stall as he had 800 games to sell.

The first day he sold 120 games.

Each day after that he sold half as many games as he had sold the day before.

How many games did Mr Martins have left at the end of the third day?

440

590

620

680

Lina made four bookmarks with the same repeated design. She shaded them differently.
Which bookmark has the same shading on the repeated design?
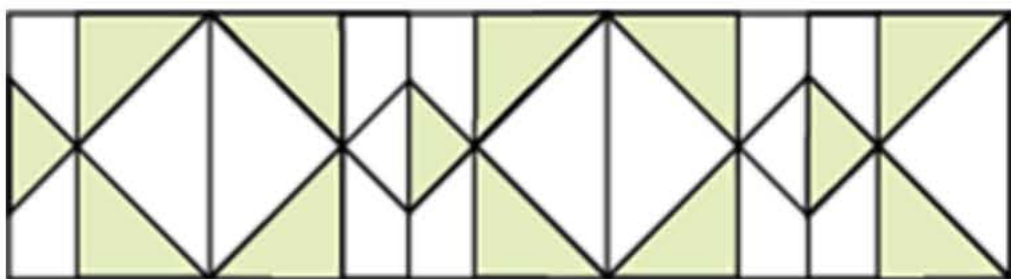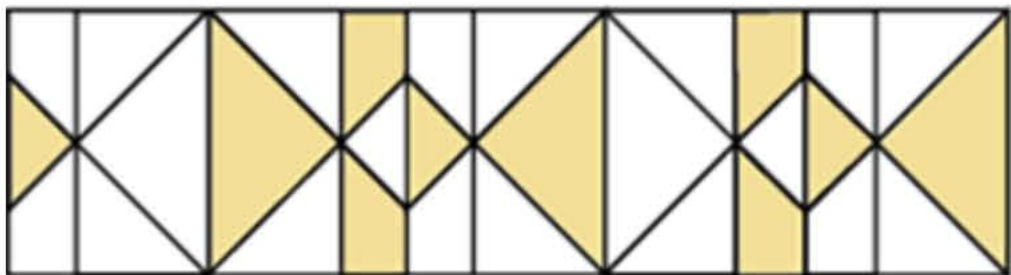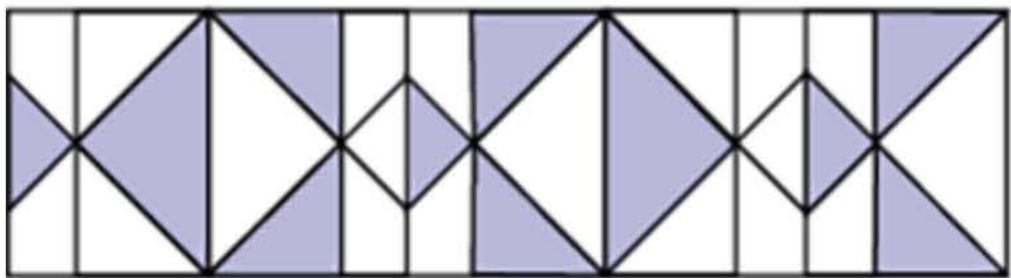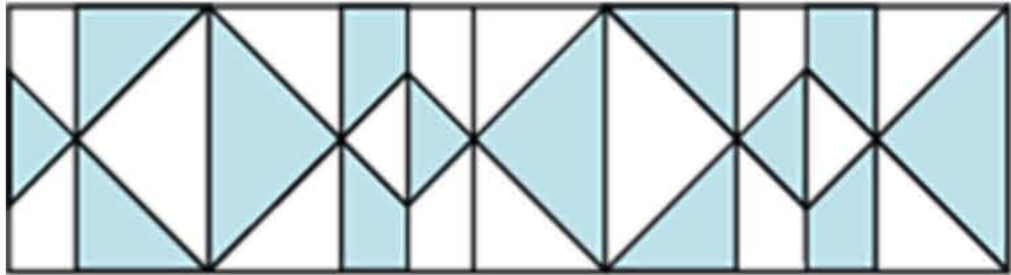
James painted the soles of his feet and made a 40° angle.

What is the size of the angle shown by each 🔴 in the triangle?

70°   80°   100°   140°

Jack hired a bike in France.

The cost to hire the bike for the first day was €20.

The cost for each day after this was a fixed lower amount.

Altogether, Jack paid €44 to hire the bike for 4 days.

What would it have cost Jack to hire the same bike for only 2 days?

€24

€28

€31

€35

Sharon calculated the answer to $\frac{3}{4} + \frac{7}{4}$.

Select **TWO** expressions that will give Sharon the same answer.

$\frac{1}{4} \times 10$

$\frac{3}{4} \times 7$

$\frac{3 + 7}{8}$

$\frac{3 + 7}{4}$

Kari and Gina are standing at opposite ends of a 30-step staircase.
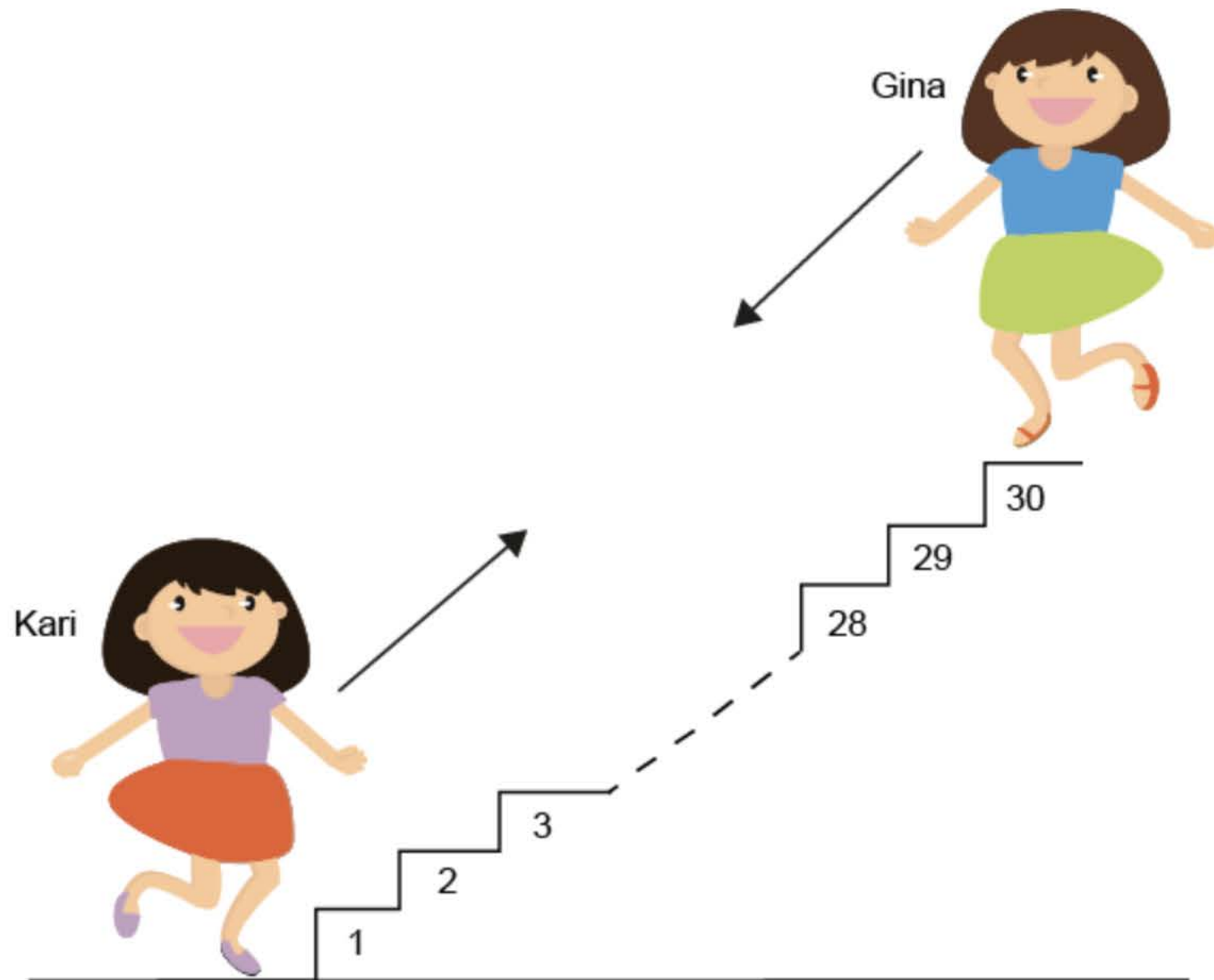
They start walking towards each other at the same time.

Gina walks down 3 steps every second.

Kari walks up 2 steps every second.

On which step will they meet?

| 18 | 15 | 12 | 10 |

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

Min folded a piece of paper twice.
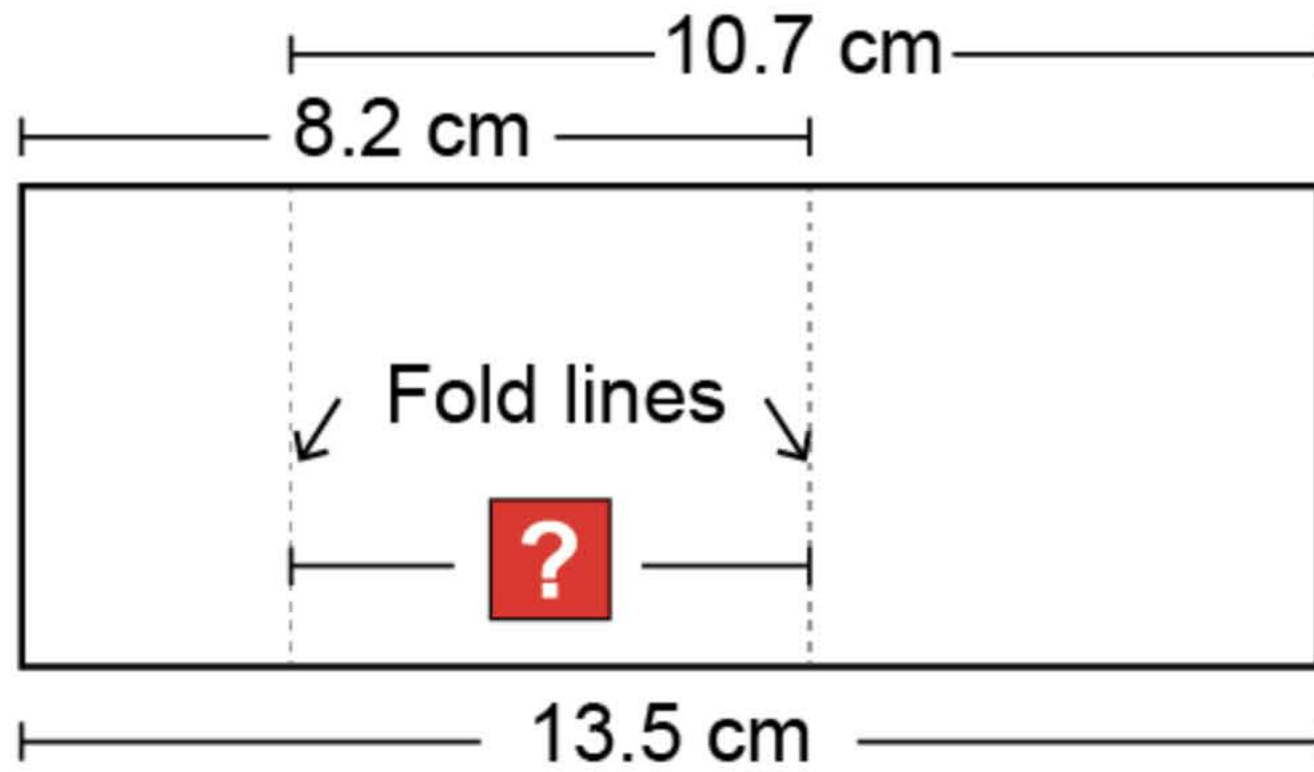
What distance must **?** be?

2.8 cm

3.5 cm

5.3 cm

5.4 cm

⭐ + 💗 = 7200

| 10 x ⭐ | + | 10 x 💗 | = | ? |

What value must ? be?

- ◯ 720 000
- ◯ 72 000
- ◯ 720
- ◯ 72

There are many different nets of a cube.

Which of these will **NOT** fold to make a cube?
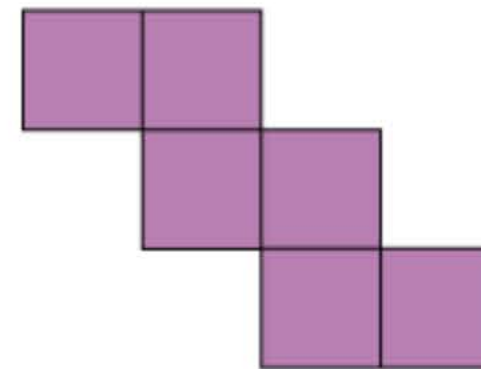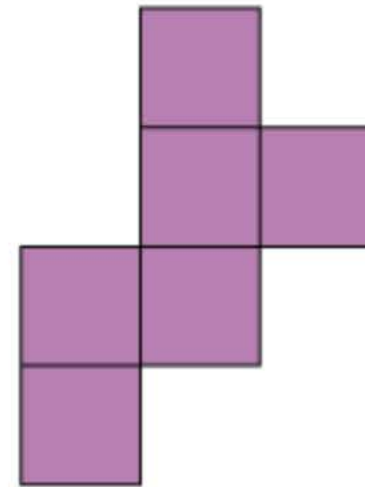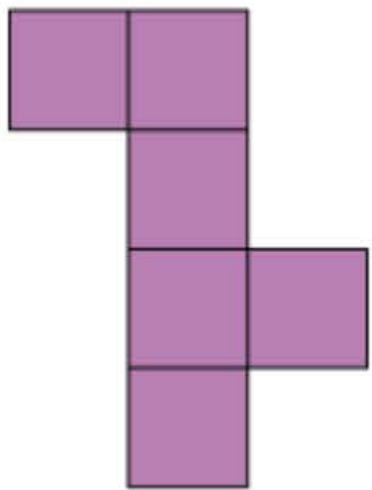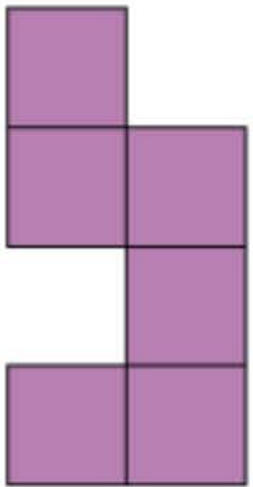
Sasi reflected this shape in the dotted line.
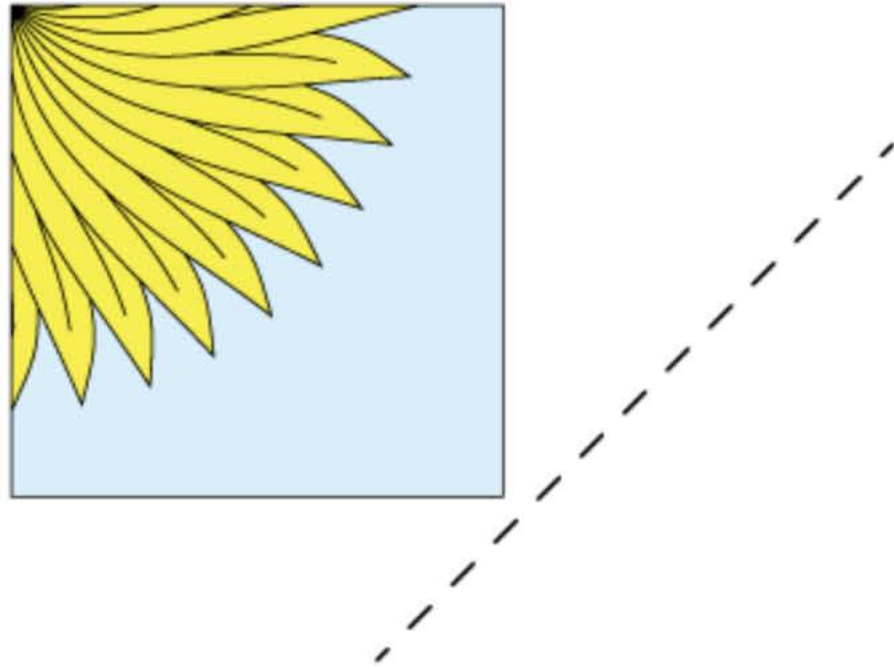
What did the reflected shape look like?
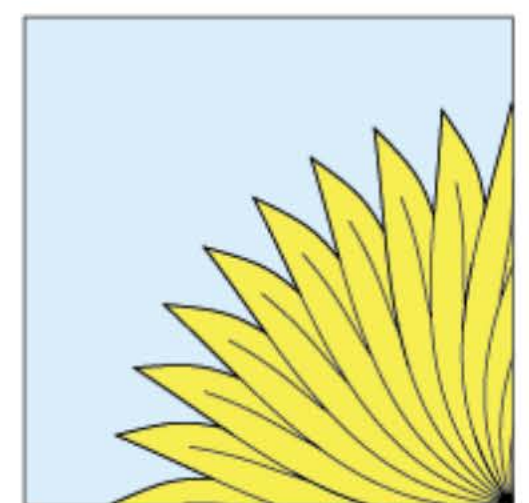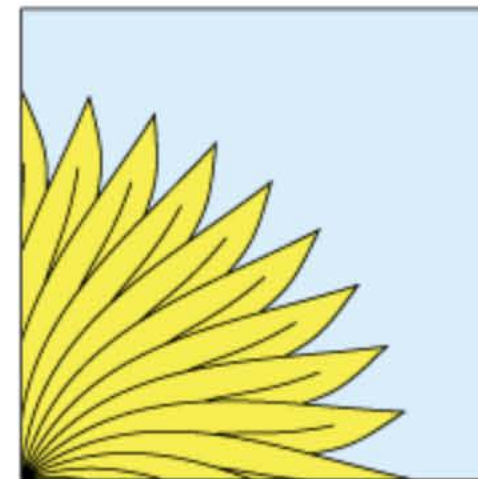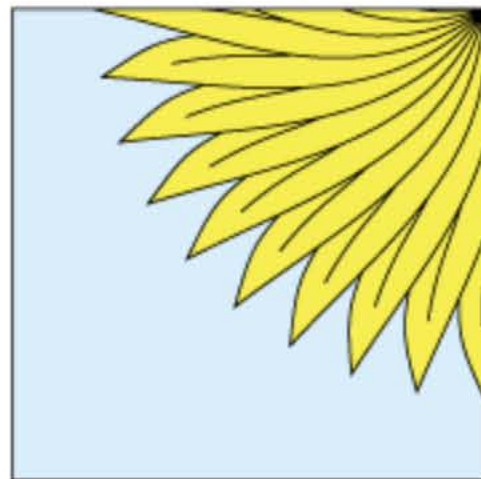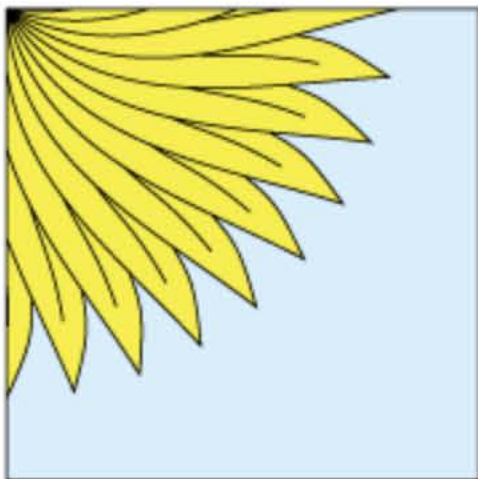
At a London market, Jill bought three pendants and a chain for £70.

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

Tara drew this tangram on a square piece of paper and then cut out 7 pieces along the dotted lines.
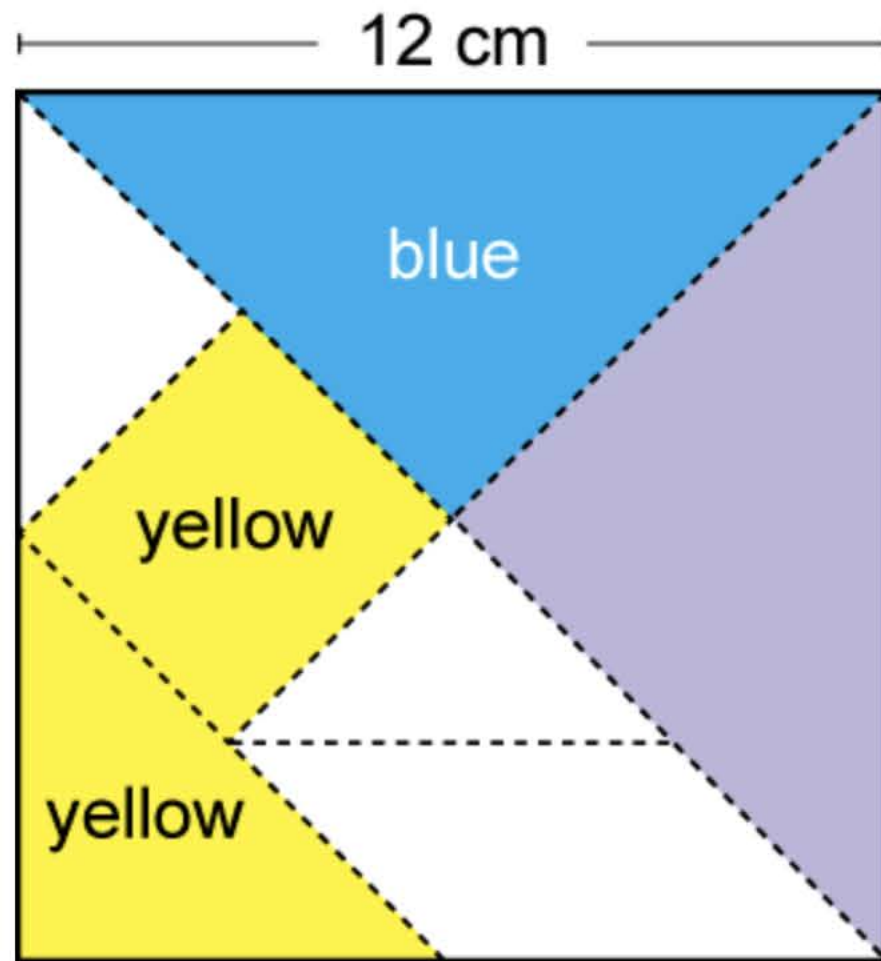
What is the combined area of the yellow pieces, in square centimetres?

12   21   36   43

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.
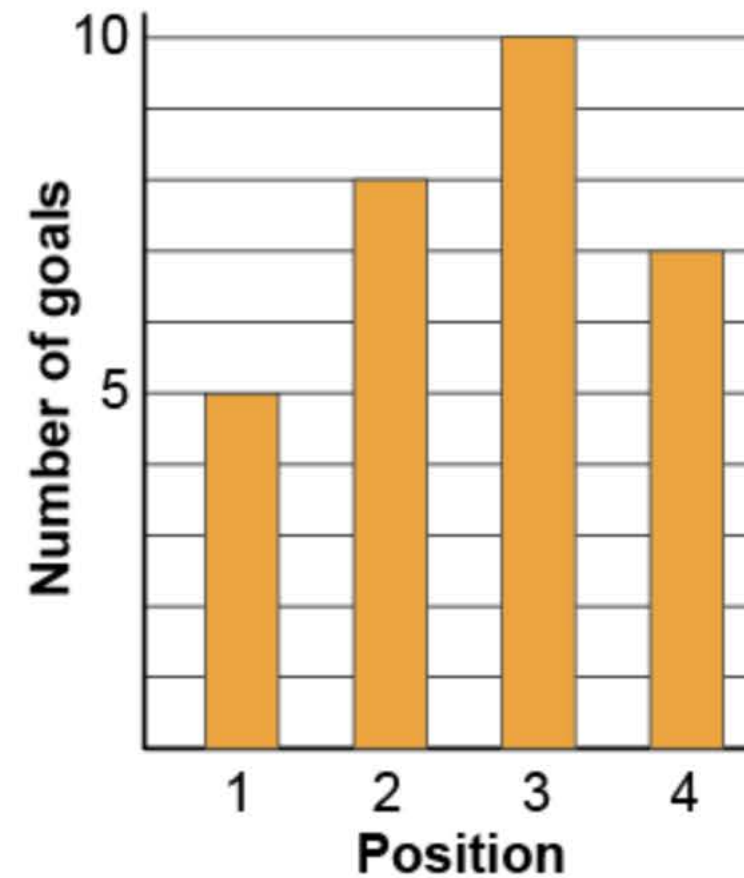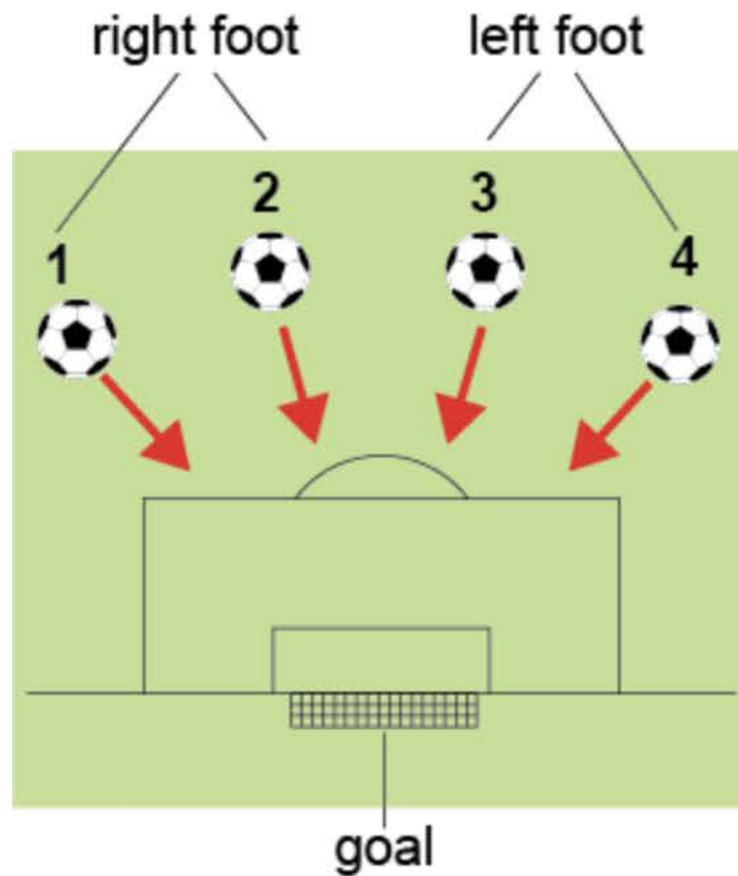
Which statement about her results is **not** true?

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.
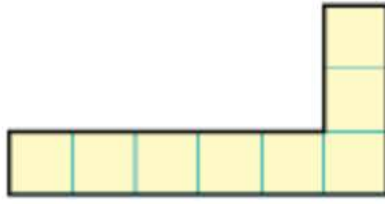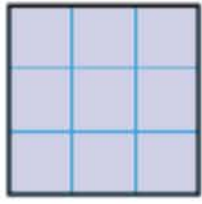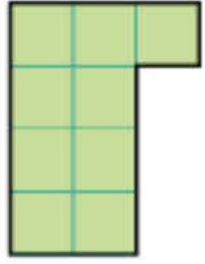
She overlapped them to make a shape with the smallest possible area.

Which shape did Kim make?
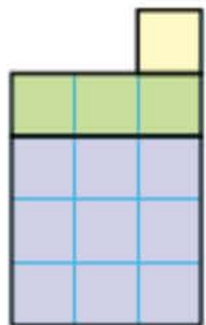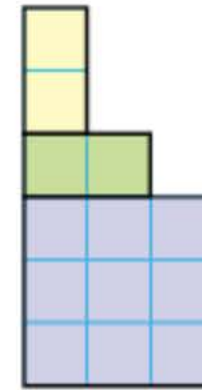
Five children live in the same street.

The twins, Julie and John, live in the first house.

Aiden, Mark and Cai live in the houses marked with their initials.

They want to meet at either the park or one of their houses.

They choose a place where the total distance travelled by all five children is the smallest possible.
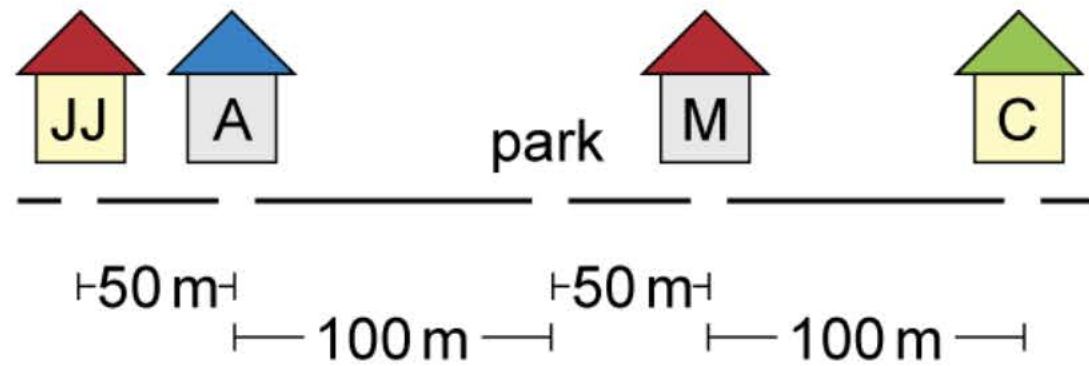
Which is the place where the friends met?

Julie and John's house

Aiden's house

the park

Mark's house

Cai's house

Isha had a paper square.
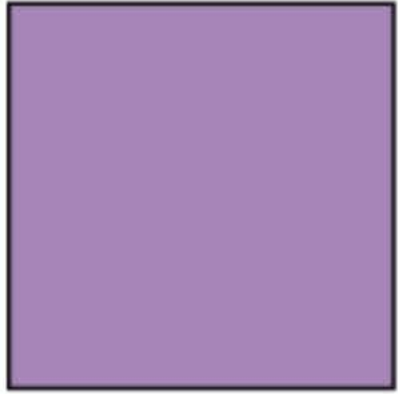
She cut a piece out of the square and made a new shape that had the same perimeter as her original square.

Which one of these could be Isha's new shape?
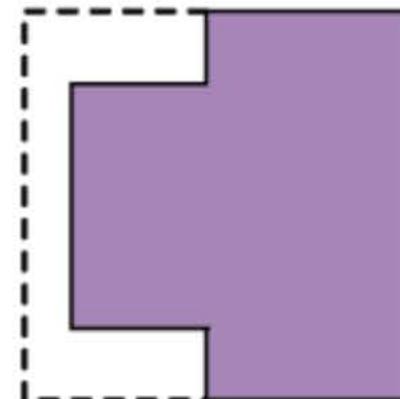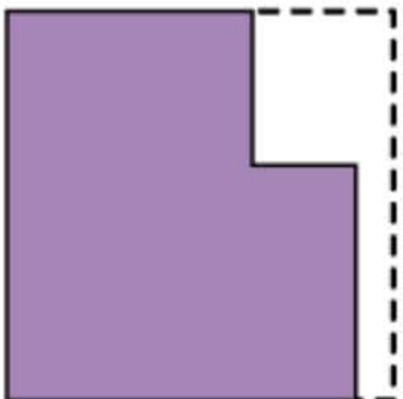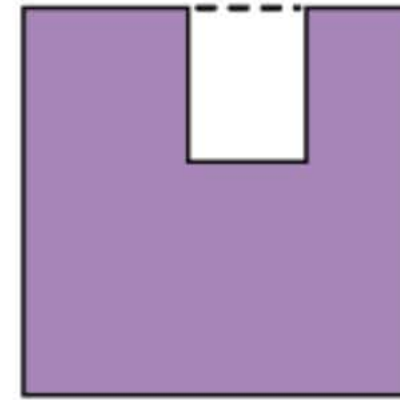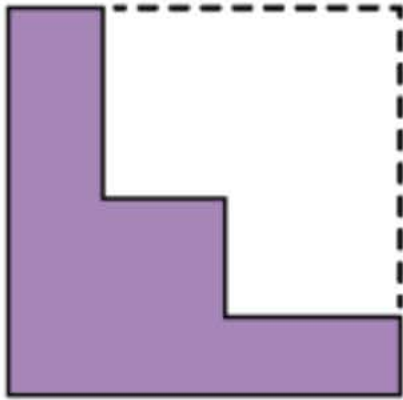
Jim is using pebbles and sticks to represent whole numbers.

- Each stick has the same positive value.
- The value of a pebble is greater than the value of a stick.
- Each pebble has the same value.

This combination represents the number 21.

Jim made this combination.

Which of these numbers could this combination represent?

7

9

11

13

The school chess team scored 16 points to win a tournament.

The tournament organisers used this point system.

Result	Number of points
Loss	0
Draw	1
Win in 1 hour or more	2
Win in less than 1 hour	3

Overall, the team
- lost 3 games
- drew 4 games
- won 3 games that took over an hour each.

How many games took members of the team less than an hour to win?

2   3   4   6

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

A revolving door at a fun fair faces north.

It starts moving in a clockwise direction.

With each click it turns through 45 degrees. Each time it clicks back to north, it changes direction.

Which direction is the door facing after 27 clicks?

north-east

north-west

south-east

south-west

Andy wanted to leave Alma Station between 10 am and 11 am. He worked out the fastest route to Grange Station using these train timetables.

Train 1			
Station	am	am	am
Alma	10:00	10:30	10:45
Blair	10:45	11:15	11:30
Cotter	10:55	11:20	11:35
Dusk	11:00	11:25	11:40

Train 2			
Station	am	am	pm
Dusk	10:55	11:25	12:00
Cotter	11:00	11:30	12:05
Blair	11:05	11:35	12:10
Grange	11:20	11:50	12:25

This is the train network relating to the two timetables.
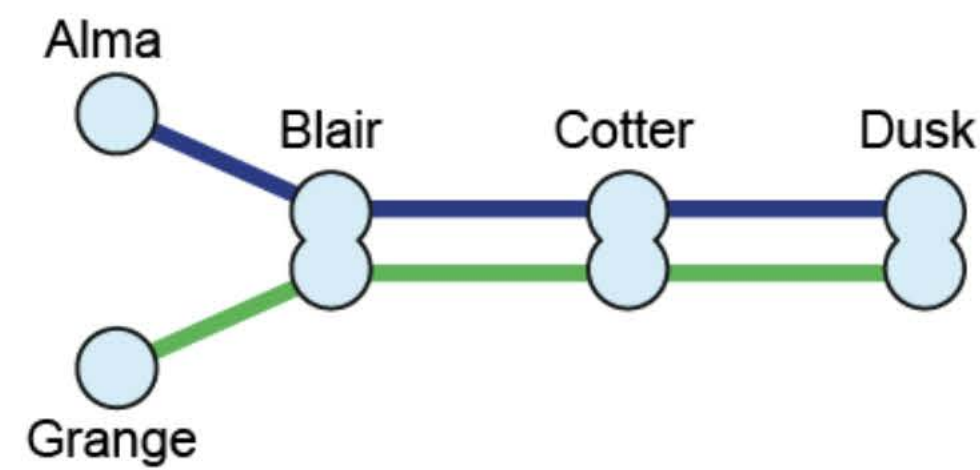
How long did the trip take Andy from start to finish?

50 minutes   1 hour 5 minutes   1 hour 20 minutes   1 hour 40 minutes

Fin wants to buy a new computer game. The full price is $55 at each of these stores.
Fin can use one of these discount vouchers to buy the game.

★ ★ ★

Games Galore

All games 25% off
with this voucher.

Hobby House

All games $15 off.
Take off a further 10%
with this voucher.

Debbie's Deals

Take $18.50 off
the full price of
any game.

Mega Mall

All games $10 off.
Take off a further 20%
with this voucher.
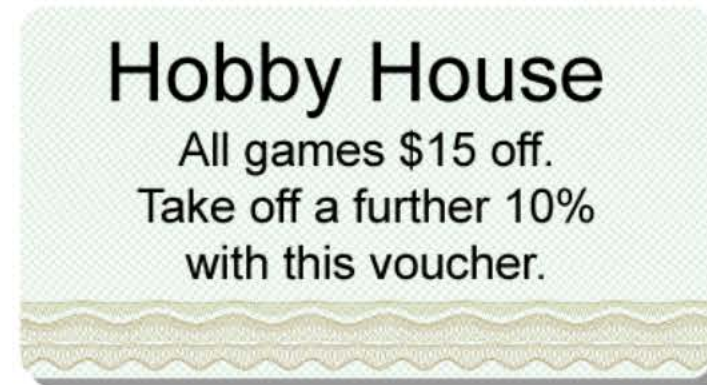
Which **TWO** stores offer the lowest price for the game?

Games Galore

Hobby House

Debbie's Deals

Mega Mall

This table shows how many students attended Bolton School in 2018.

	Girls	Boys
2018	140	120
2019	180	?

The total number of students increased by 20% from 2018 to 2019.
How many boys attended Bolton School in 2019?

160

156

140

132

Meg rolled three regular dice.

Each time she rolled two sixes or three sixes she recorded it. Two examples of these outcomes are listed in the table.

Red dice	Green dice	Blue dice
6	6	4
6	1	6

How many different outcomes, showing two or three sixes, are possible?

12   15

16   18

Peter made a shape using 7 identical triangles.

The perimeter of Peter's shape is 105 cm.
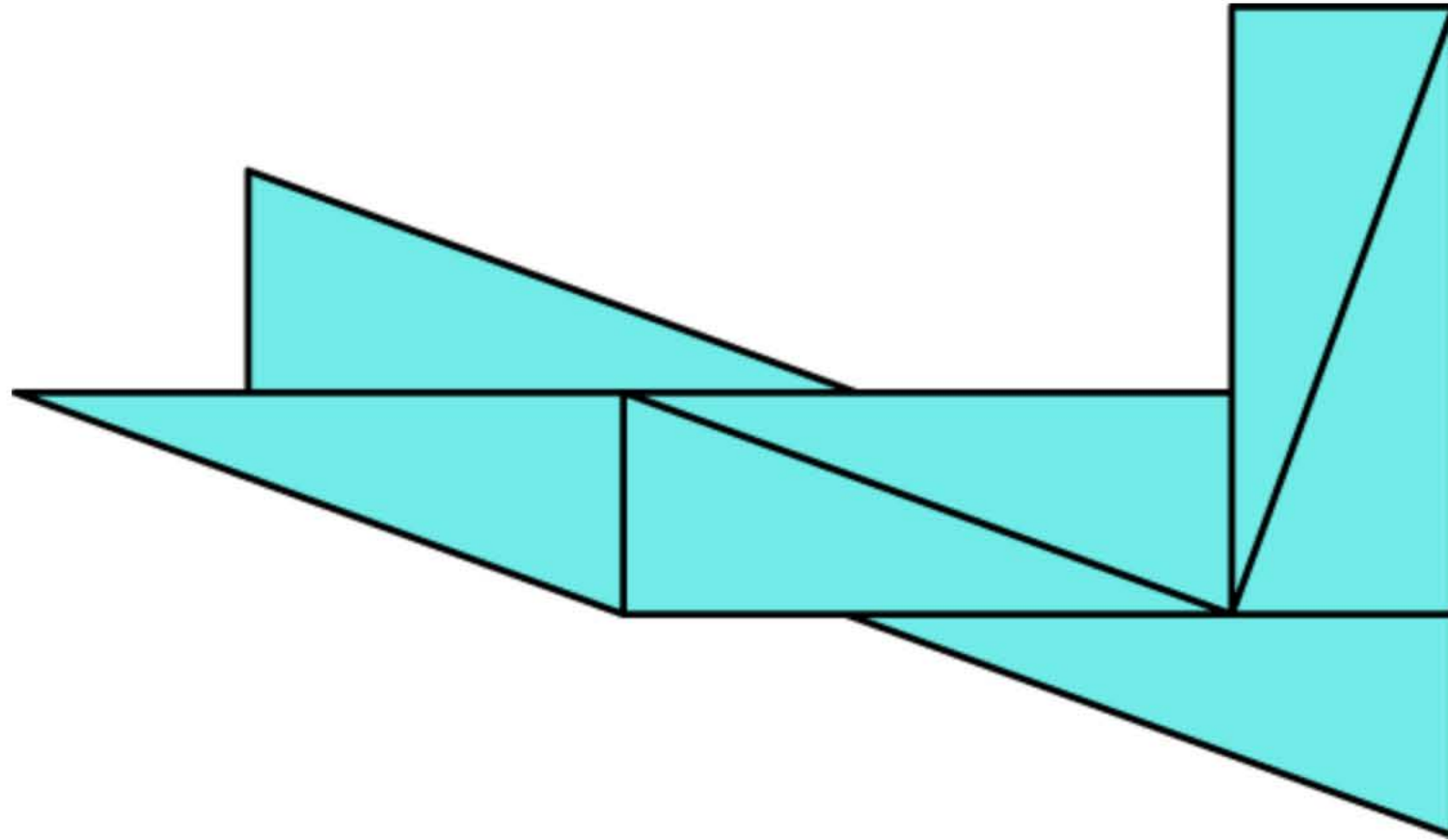
What is the perimeter of each triangle?

cm

Kyle stood at a point on the bush track where the angle between two trees and the angles between the track and each house was the same.

He measured two more angles and drew a diagram.

NOT TO SCALE
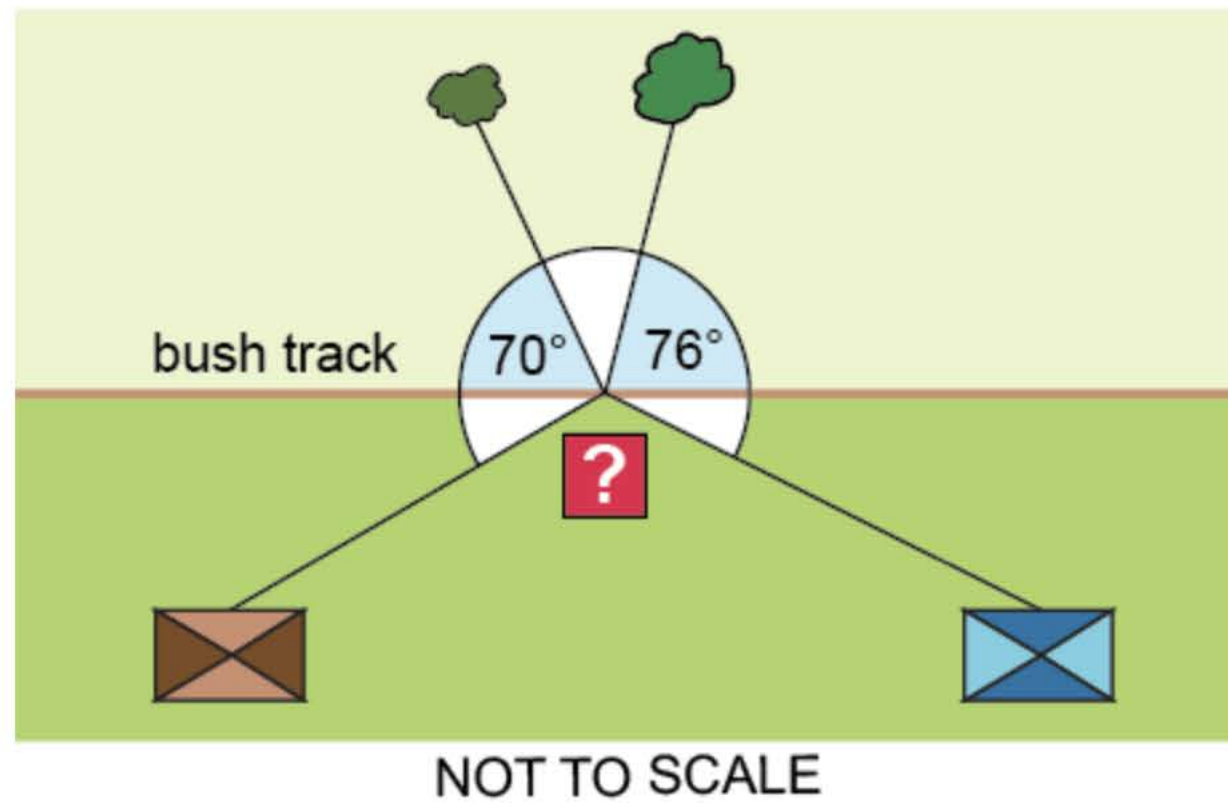
What is the size of the angle between the two houses?

°

Each year, the main street in Bianca's town is closed for a festival.

The street closes at 7.30 pm on Friday and reopens at 6.30 am on Monday.

For how many hours is the street closed?

hours

In this pattern, two outer numbers in each quadrant are added together. Two more operations are used to reach the number at the centre of each quadrant.
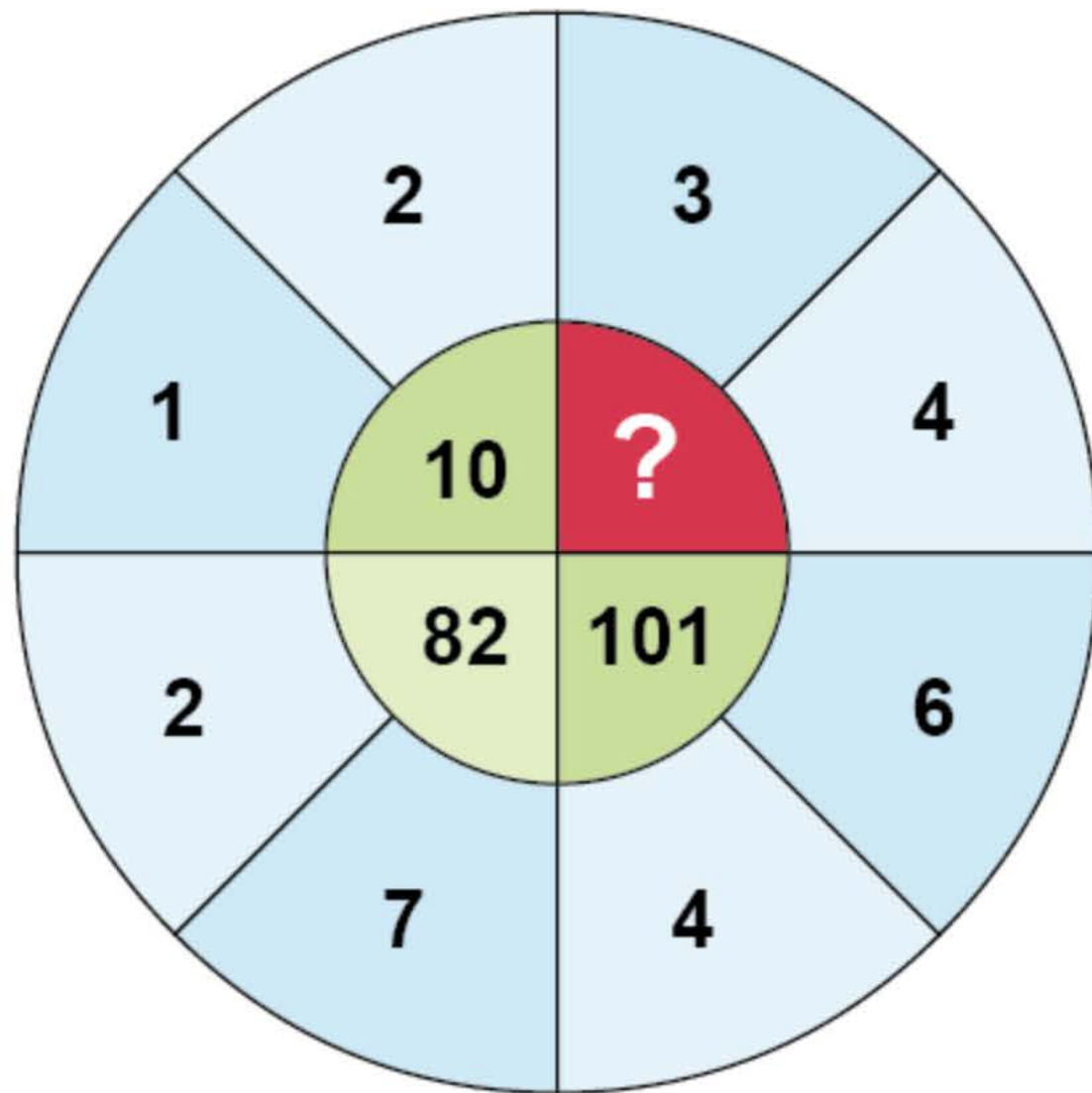
What value must [?] be?

Ajay is packing boxes of chocolates into large cardboard boxes. Each cardboard box can be closed after packing.

6 units

6 units

2 units

4 units

PREMIUM CHOCOLATES

1 unit

1 unit
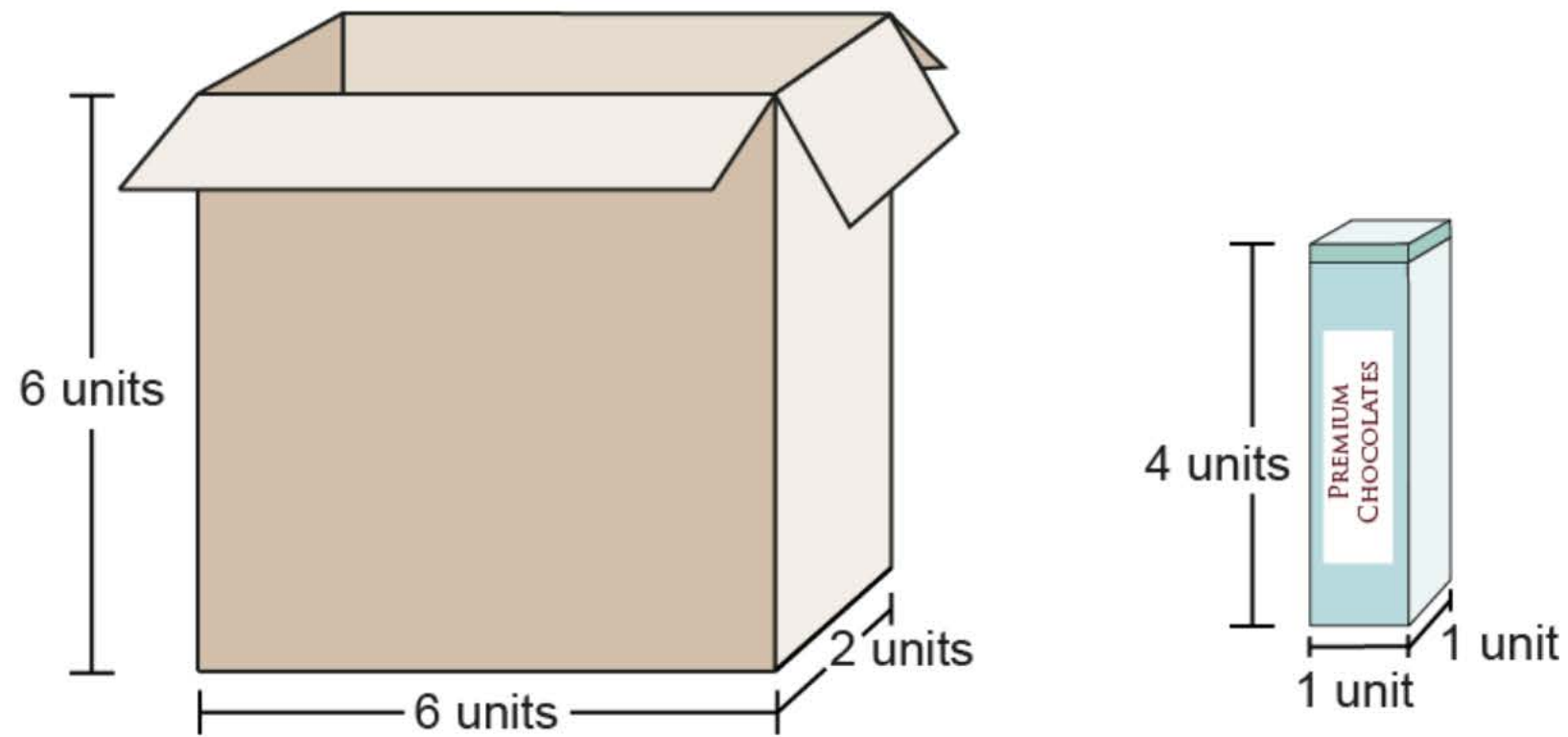
Ajay has 1440 boxes of Premium Chocolates to pack.

What is the smallest number of large cardboard boxes required?

       large boxes

Question number	Correct answer	Mark	Category	Descriptor
1	D		Space & Geometry	Read a legend and interpret a direction on a map
2	B		Algebra & Patterns	Use a doubling and halving strategy to solve a multiplication equation
3	C		Number & Arithmetic	Solve a simple word problem involving subtraction
4	B		Space & Geometry	Read a legend and interpret the shortest route on a map
5	A		Number & Arithmetic	Interpret a table and calculate the equivalent fraction required
6	B		Chance & Data	Compare the chance of rolling a particular shape on a fair dice
7	C		Measures & Units	Identify the shape with the largest area
8	D		Number & Arithmetic	Use factors of a number to solve a problem
9	C		Chance & Data	Group shapes by pattern, number of sides and position to solve a problem
10	C		Measures & Units	Identify the operation used to convert millimetres to metres
11	B		Number & Arithmetic	Solve a problem involving a pattern that decreases by halves
12	D		Space & Geometry	Identify the pattern that is translated
13	A		Space & Geometry	Calculate a base angle of an isosceles triangle given they are equal
14	B		Algebra & Patterns	Solve a problem involving two fixed amounts
15	A, D		Number & Arithmetic	Identify expressions that are equivalent to the sum of fractions with the same denominator
16	C		Measures & Units	Solve a problem involving the comparison of distances over the same time period
17	B		Measures & Units	Solve a problem involving am and pm time
18	D		Number & Arithmetic	Solve a problem involving a number of decimal differences in measurements
19	B		Algebra & Patterns	Apply an understanding of place value to solve a multiplication problem
20	A		Space & Geometry	Identify the net that will not fold to make a cube
21	D		Space & Geometry	Identify a shape after a one-step reflection
22	A		Number & Arithmetic	Solve a problem involving subtraction and division
23	C		Measures & Units	Calculate the area of a fraction of a square
24	D		Chance & Data	Interpret two diagrams and identify the incorrect response
25	B		Space & Geometry	Identify the smallest shape that can be formed by overlaying three shapes
26	B		Number & Arithmetic	Solve a problem involving minimising distance
27	A		Measures & Units	Identify the cut-out shape with the same perimeter as the original square
28	B		Algebra & Patterns	Solve a problem involving symbols that represent numbers
29	A		Chance & Data	Solve a number problem involving a frequency table
30	A		Number & Arithmetic	Solve a problem involving factors and multiples

Question number	Correct answer	Mark	Category	Descriptor
31	D		Space & Geometry	Solve a problem involving angles and changing direction
32	B		Measures & Units	Interpret two timetables to find the fastest route
33	B, D		Number & Arithmetic	Calculate percentage discounts to find the best deals
34	D		Number & Arithmetic	Solve a number problem involving percentages
35	C		Chance & Data	Determine the number of possible outcomes involving three dice
36	35		Measures & Units	Solve a problem involving perimeter
37	112		Space & Geometry	Calculate missing angles involving angles at a point
38	59		Measures & Units	Use 12-hour time and 24-hour time to solve a duration problem
39	50		Algebra & Patterns	Determine the rule used to generate numbers and apply it to solve a problem
40	90		Space & Geometry	Solve a packing problem involving rectangular prisms

You have completed this practice test.

Your mark is | / 40

Click here to reset the test and try again.

ICAS.

PAPER

D

ICAS
assessments