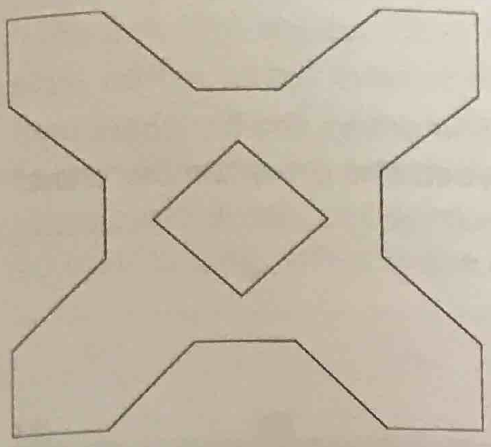
# Paper 13

Test time: 75 minutes

1 The plan shows a design for a garden. Draw on all the lines of symmetry. (4)



2 Find the difference between $18\frac{2}{5}$ and $35\frac{3}{5}$ _____ (1)

3 Circle the smallest number in this list. (5)

$\frac{2}{3}$ 0.333 $\frac{2}{9}$ 0.24 23% $\frac{26}{80}$ $\frac{2}{7}$

4 Add together the numbers below. Write your answer in figures (numerals).

_____ (2)

**four hundred thousand** **fifty-eight thousand two hundred**
**eighty-seven** **six million**

5 Tariq buys 5 tubs of raspberries costing £1.65 per tub and 4 packs of satsumas costing £1.89 per pack. How much change will he receive if he pays with a £20 note?

_____ (4)

6 186 plus 216 = _____ (1)

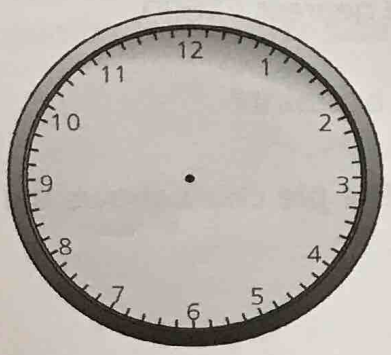
7 871 subtract 348 = _____ (1)

8 76 multiplied by 34 = _____ (1)

9 1872 divided by 12 = _____ (1)

10 Eggs are packed into boxes. Each box holds half a dozen eggs. How many boxes are needed to hold 87 eggs? _____ (2)

11 Draw hands on the clock face to show the time 20:35 (1)




12 If 3 packets of cereal cost £5.55, how much will 5 packets cost? _____ (2)

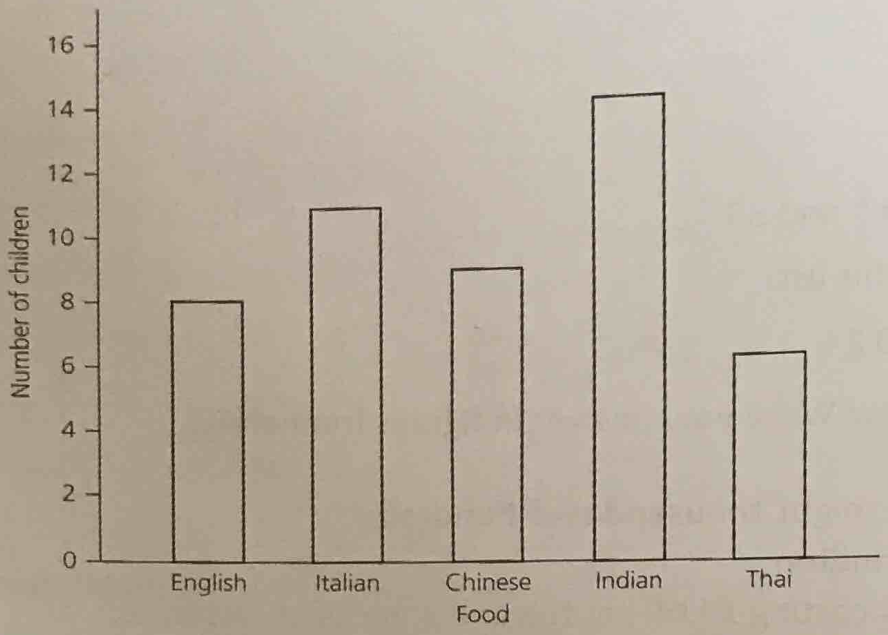
13 $N$ is a digit between 0 and 9

$$\begin{array}{rccc} & 7 & N \\ \times & & N \\ \hline & 4 & 5 & 6 \end{array}$$

What is the value of $N$? _____ (1)

14 Mia asks 50 children about their favourite type of food. She draws the bar chart below to show her results. What mistake did she make when she drew the bar chart?

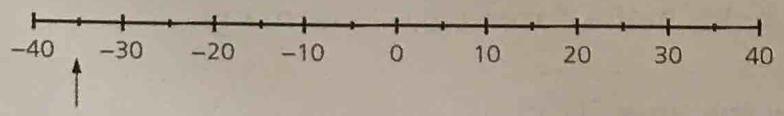
_____ (2)




15 Jacques wants to fill his new paddling pool. After he pours in 2271 litres of water, the pool is only $\frac{3}{8}$ full. How much water can the paddling pool hold when it is completely full? _____ (2)

16 Ricardo uses a rope that is 32 metres long to mark out a rectangle. The length of the rectangle is three times the width. What is the area of the rectangle? _____ (3)

17 What number is marked by the arrow on the scale below? _____ (1)

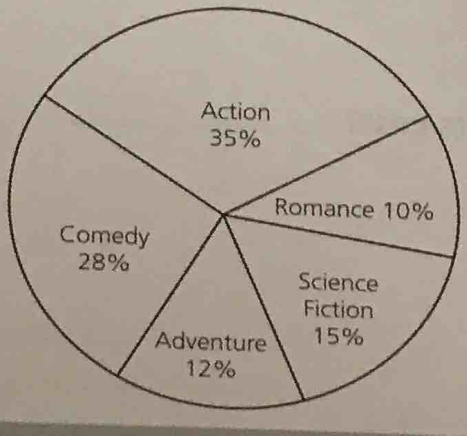



18 Ralph has some money in his bank account. When rounded to the nearest £1000, he has £3000

What is the largest amount of money Ralph could have in his account?

_____ (1)

19 Nina asked her friends to choose their favourite type of film. The pie chart shows the percentage of her friends that chose each type of film.



If 56 of her friends chose comedy, how many friends did she ask altogether?

_____

(2)

20 What is $\frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{8}$? Write your answer as a mixed number. _____

(5)

21 If the input for the function machine below is an odd number, will the output be even, odd or either even or odd? _____

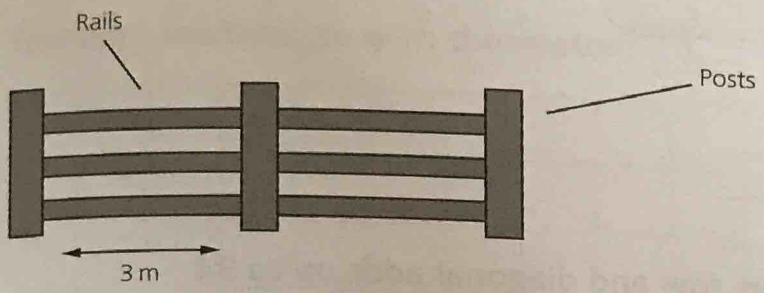
Input → [×] 3 → [+] 3 → Output

(4)

22 Farmer Phil is going to put up a post and rail fence. There will be a post every 3 metres and 3 rails between each post, as shown in the diagram. The fence will be 90 metres long. What is the combined number of posts and rails that Phil will need?

_____

(4)

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23 In the magic square below, each column, row and diagonal adds up to 15
Which number will be in the cell marked with an $X$?

$X$ = _____

(3)

| | | |
|---|---|---|
| | | |
| | 5 | 3 |
| 2 | | $X$ |

24 Jennifer has lots of cats and kittens. All of her cats have the same mass and all of her kittens have the same mass. Three cats and four kittens have a mass of 20 kg. Five cats and six kittens have a mass of 32 kg. What is the mass of one cat and one kitten?

_____

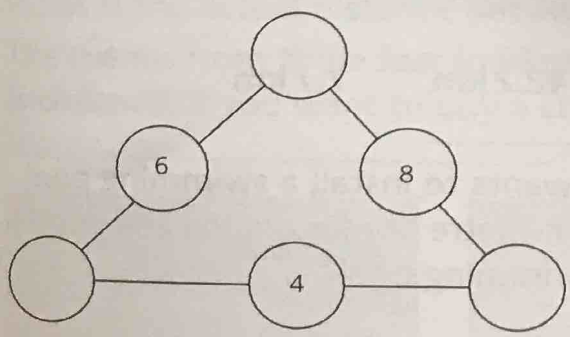
(5)

25 Two years ago, the combined age of five cats was 25 years. What will their combined age be in three years' time? _____

(2)

26 The number in the middle circle of each side of this triangle is the sum of the numbers on either side of that circle. Complete the diagram.

(3)




27 David and Sophie are out pushing their son, Dexter, in his pram. The wheels of the pram are 20 cm in diameter. How many turns will each wheel make as they push the pram along a 5 metre path? Round your answer to the nearest whole number.
Remember, the circumference of a circle is 3.14 multiplied by the diameter.

_____

(3)

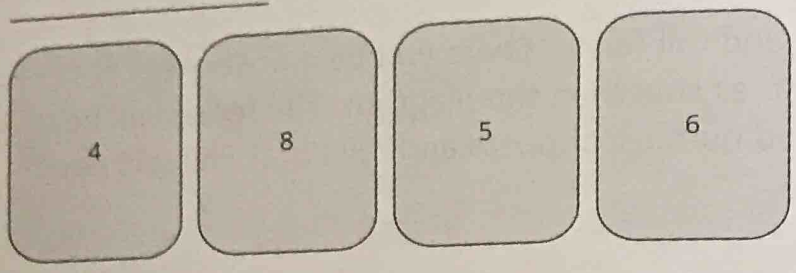
**Turn over to the next page**

28 Through how many degrees does the minutes hand of a clock move between 4:30 pm and 5:05 pm? _____ (1)

29 Tom watches a film that lasts for 1 hour 40 minutes. Through how many degrees will the minute hand on a clock face move during this time? _____ (3)

30 Use the digits on these cards to make the closest possible number to 7000 (4)

_____




31 4! is an abbreviation for $4 \times 3 \times 2 \times 1$

$4! = 24$

Work out the value of 6! _____ (1)

32 Work out the value of $\frac{8!}{5!}$ _____ (1)

33 In the magic square below, each column, row and diagonal adds up to 34

Each of the numbers 1 to 16 can appear only once in the magic square

Complete the square and then write down the number that goes into the cell marked $X$.

$X =$ _____ (5)

| | | | |
|---|---|---|---|
| 12 | | 14 | |
| | | | $X$ |
| | 10 | 5 | |
| | 15 | 4 | 9 |

34 When 176 children have school dinners, regulations require that 8 dinner ladies supervise them. A new school cook starts and the number of children having school dinners increases to 286 children. How many dinner ladies will now be needed to supervise? _____ (2)

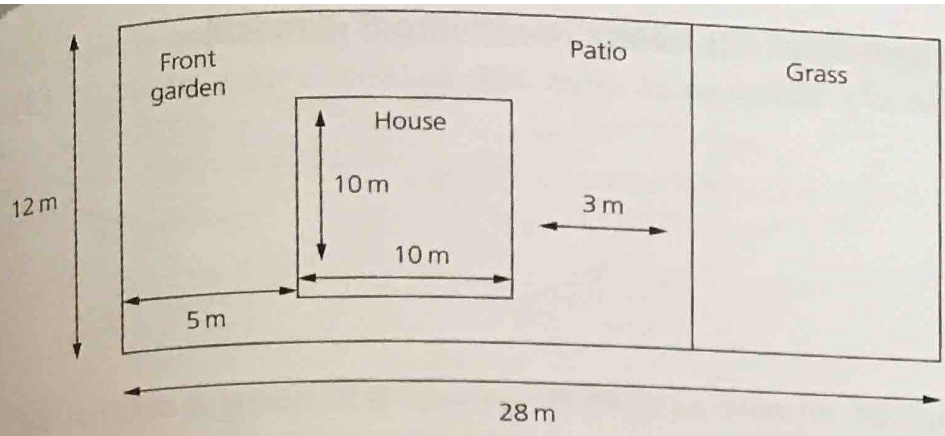
35 It takes 13 cleaners 5 days to clean the royal palace. How long will it take 10 cleaners to clean the royal palace? _____ (2)

36 There are 6 different stages to complete a 7-day race across the desert. The distance of each stage is listed below.

**34 km** **43.1 km** **37.5 km** **81.5 km** **42.2 km** **7.7 km**

What is the mean distance of the stages? _____ (2)

37 The diagram shows a plan of Mr King's garden. He wants to install a swimming pool to replace the grass in his garden. There must be a 2-metre border around the pool. What is the greatest possible surface area of the swimming pool? _____ (5)

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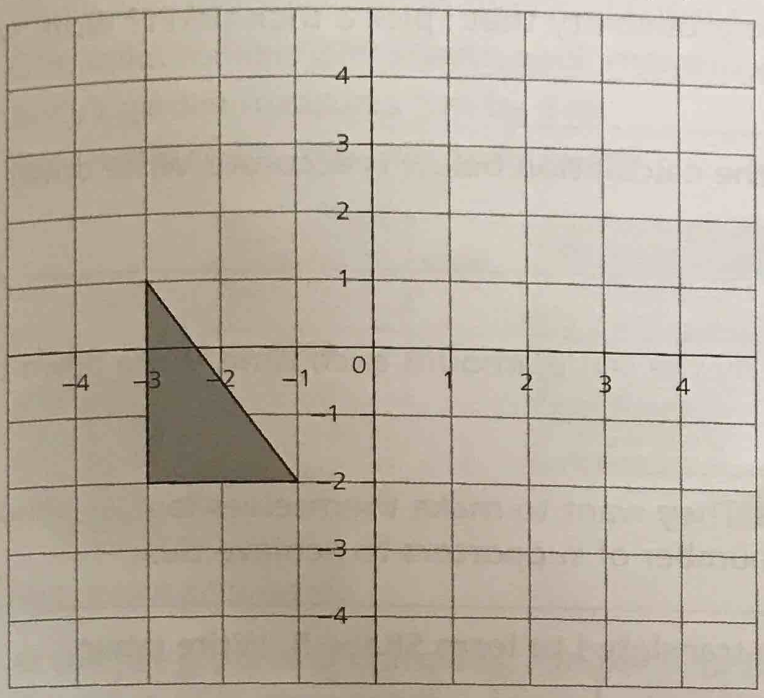
**38** Translate the triangle with the vector $\begin{pmatrix} 4 \\ 3 \end{pmatrix}$. **(1)**




**39** $\frac{11}{13} - \frac{7}{13} =$ _____ **(1)**

**40** Complete the sentence below.

985 368 is 990 000, rounded to the nearest _____. **(1)**

**41** Jahangir is using a map to find the distance between Fromley and Gowinton. The map has a scale of 1 cm : 250 m. On the map, the distance between the two towns is 8 cm. What is the actual distance between the two towns? _____ **(1)**

**42** The menus from three fast food restaurants are shown below. Which restaurant is cheapest if you want to buy a cheeseburger, fries and a milkshake?

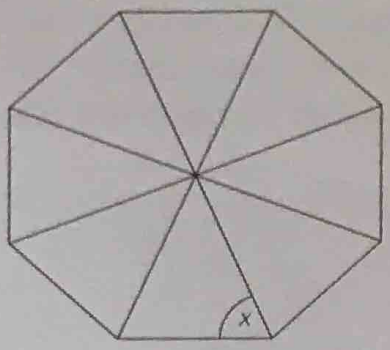
_____ **(4)**

| Quick Food | |
|---|---|
| Cheeseburger | £1.99 |
| Fries | £1.19 |
| Milkshake | £1.57 |

| Speedy Bites | |
|---|---|
| Cheeseburger | £1.87 |
| Fries | £1.39 |
| Milkshake | £1.43 |

| Zoom Munch | |
|---|---|
| Cheeseburger | £2.08 |
| Fries | £1.12 |
| Milkshake | £1.51 |

43 The diagram shows a regular octagon that has been divided into 8 identical triangles. What is the size of angle $x$? _____ (3)




44 I toss a coin twice. What is the probability that I score two heads? _____ (2)

45 In a lucky dip at the school fair, there are 24 treat tickets, 8 trick tickets and 8 blank tickets. I pick the first ticket. What is the probability that I pick a trick ticket? Write your answer as a fraction in its simplest form. _____ (3)

46 Round 29.236 to two decimal places. _____ (1)

47 Use rounding to check whether or not the calculation below is accurate. Write down your calculation.

_____ (1)

$489 \times 9 = 44001$

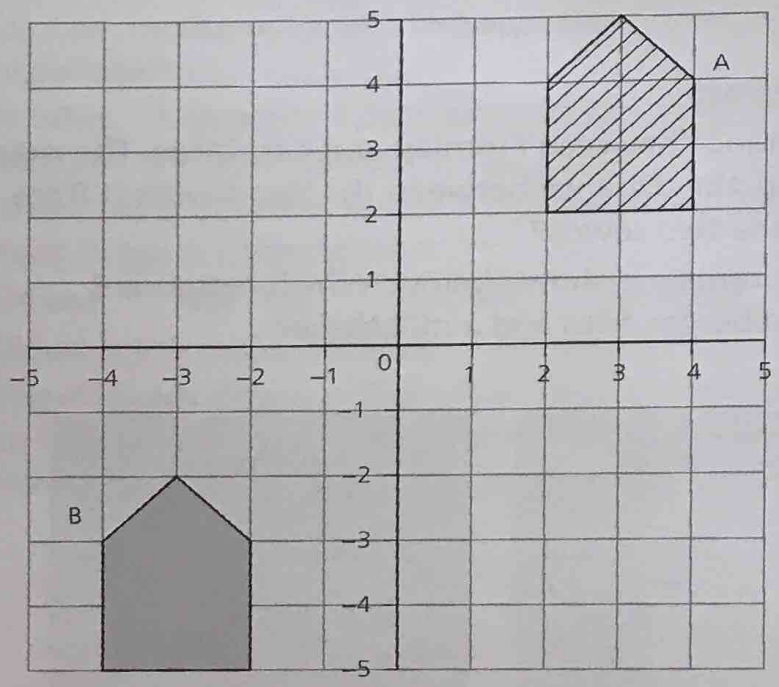
48 The numbers in this sequence decrease by the same amount each time. Write down the next number in the sequence. (1)

217 157 97 37 _____

49 The Perfect Party has 44 523 supporters. They want to make themselves look as popular as possible. How could they round the number of supporters to achieve this?

_____ (1)

50 In the diagram below, Shape A has been translated to form Shape B. Write down the vector that describes the translation. $\begin{pmatrix} \_\_ \\ \_\_ \end{pmatrix}$ (2)



51 Aliens are landing on the Earth. There are 3-eyed aliens and 5-eyed aliens. There are 79 aliens with a total of 325 eyes. How many aliens have 3 eyes? _____ (4)

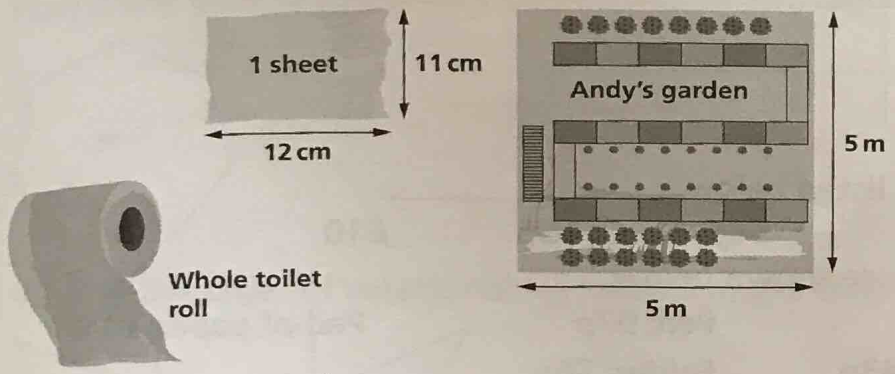
52 It takes a group of 8 children 6 days to answer all the questions in a maths book. (They work on separate pages.) How many days would you expect it to take a group of 3 children to answer all the questions? _____ (2)

53 Andy wonders how many rolls of toilet paper he would need to tear up to cover the whole area of his garden in sheets of toilet paper.

One toilet roll has 220 sheets, each measuring 12 cm by 11 cm.

Andy's garden measures 5 m by 5 m.

How many toilet rolls will Andy need? _____ (4)

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54 At the pet grooming company, *Pamper your Dog*, it costs £35.00 to have a dog groomed. There is a 15% discount if a dog is groomed once a month for the whole year.

How much will it cost Debra to have her dog, Roxy, groomed once a month for a whole year? _____ (3)

55 Di pays £59.40 for a dress for her brother's wedding. The dress was reduced by 50% in a sale and on the day Di bought the dress, the manager was offering a further 10% off. What was the original cost of the dress? _____ (2)

56 Hayato is 5 feet 2 inches tall and his friend Takumi is 4 feet 9 inches tall. What is the difference in their heights in centimetres? (1 inch = 2.5 cm) _____ (2)

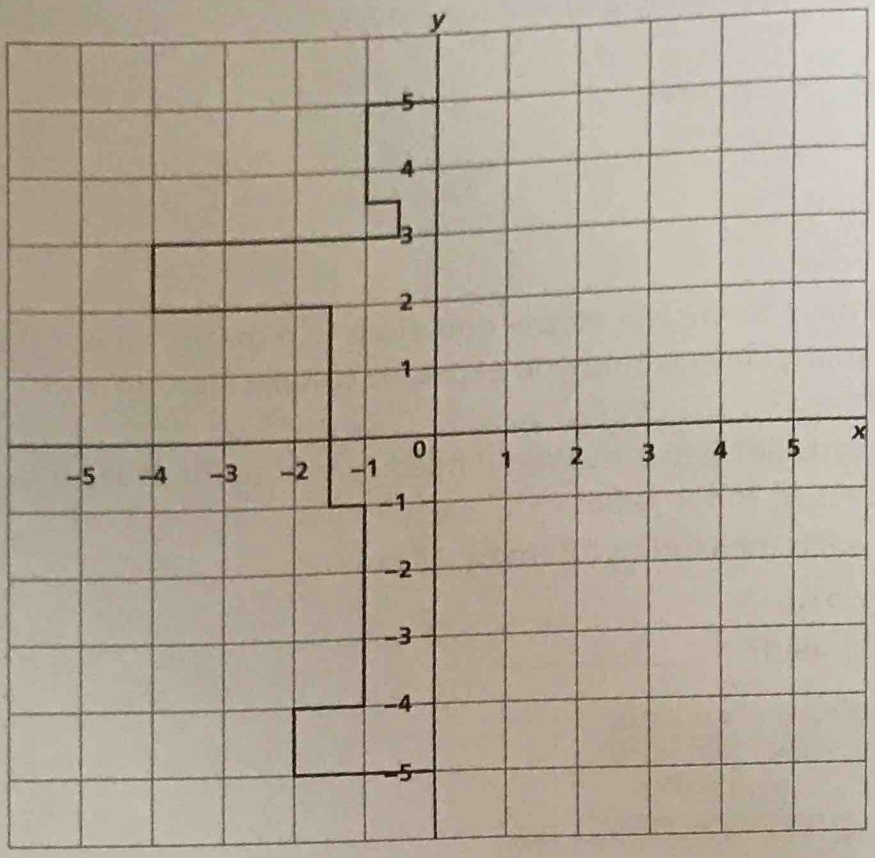
57 The following quantities of food are recommended for 3 people.

Pasta: 375 g Quiche: 270 g Vegetables: $1\frac{1}{2}$ cups

What quantities of these foods would be recommended for 5 people? (3)

Pasta: _____ Quiche: _____ Vegetables: _____

58 Draw the reflection of the shape shown in the $y$-axis. (1)




59 Add up the amounts of money listed below. _____ (1)

**£3.48** **25p** **£1.75** **54p** **18p** **£10**

60 The cost of a number of items are shown below.

Book: £2.50 Ruler: 56p Pen: 97p Pad of paper: £1.84

Map: £1.20 Bookmark: 43p Folder: 76p

I buy 3 different items for £3.60

Which 3 items have I bought? _____ (1)

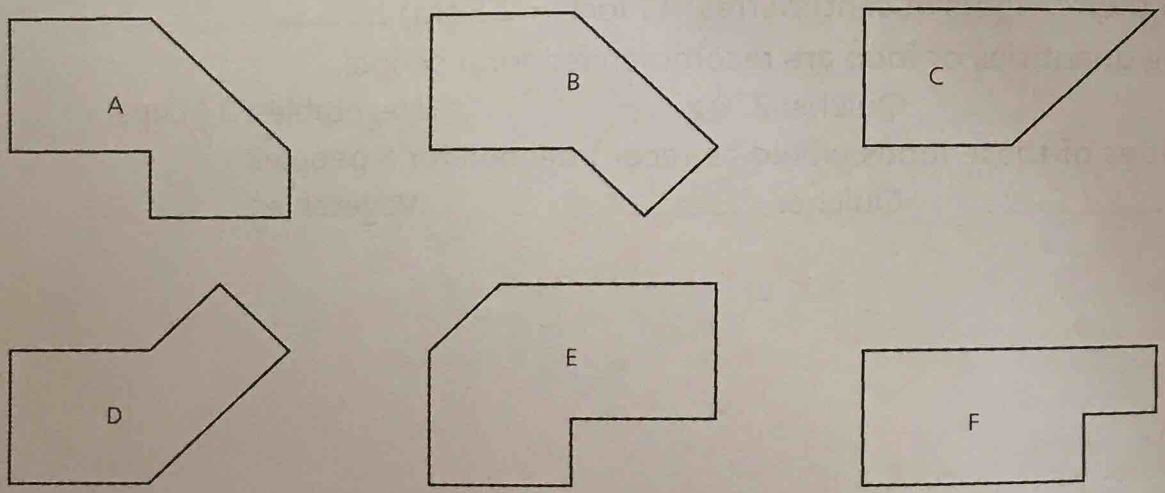
61 Subtract 6.78 from 23.41 _____ (1)

62 Divide 218.4 by 6 _____ (1)

63 Write 28 as a product of its prime factors. _____ (1)

64 What is $\frac{9}{14} \div \frac{1}{4}$? _____ (4)

65 Which two shapes are the same? _____ (1)



66 These are the distances, in millions of kilometres, of the eight planets from our Sun.

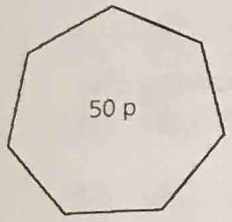
| Planet | Distance from the Sun (millions km) |
|---|---|
| Mercury | 58 |
| Venus | 108 |
| Earth | 150 |
| Mars | 228 |
| Jupiter | 778 |
| Saturn | 1425 |
| Uranus | 2874 |
| Neptune | 4501 |

Which two planets are 1317 million kilometres apart?

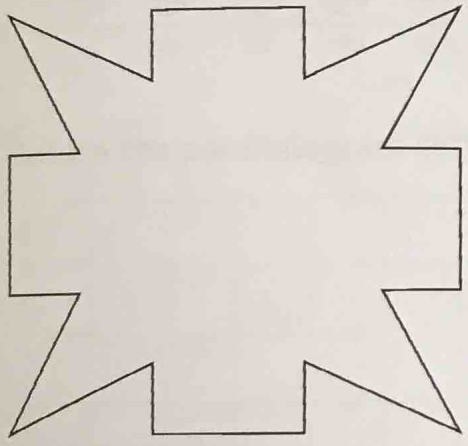
_____ (1)

67 DVDs cost £3.99 each. How many DVDs can be bought with £40? _____ (1)

68 How many lines of symmetry does a regular heptagon have? _____ (1)




69 What is the order of rotational symmetry of the shape shown? _____ (1)

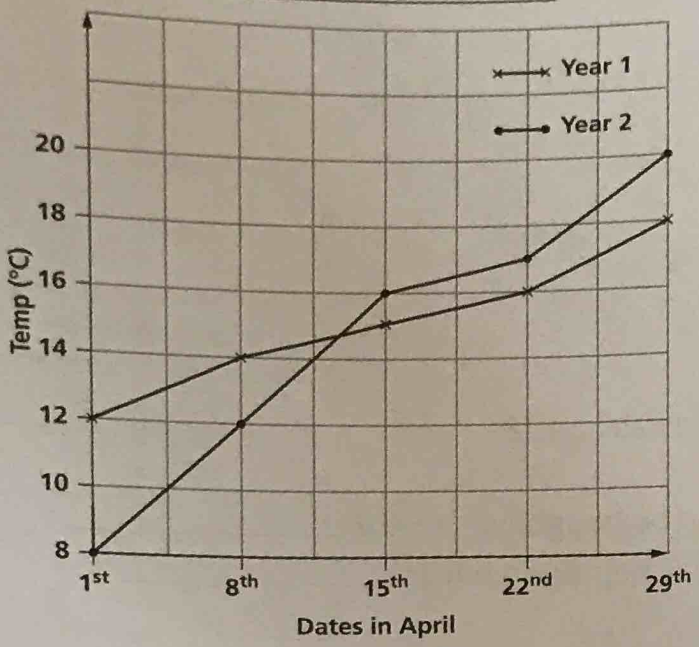


70 Duncan swims 1000 metres in a 25-metre swimming pool. He swims 15 lengths of front crawl, 10 lengths of breaststroke, 7 lengths of butterfly and the rest backstroke. How many metres of backstroke does he swim? _____ (4)

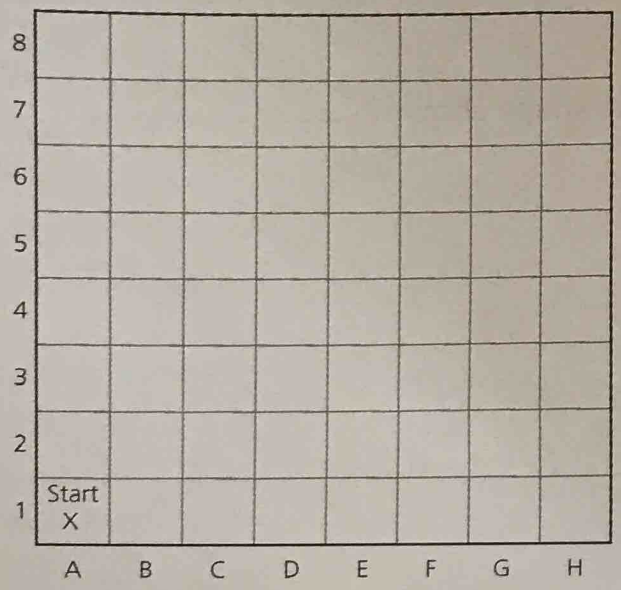
71 Max is running a 3-kilometre race. When the winner of the race crosses the line, Max is 66% of the way through the race. How far has Max run when the winner crosses the finishing line? _____ (1)

72 The graph below shows the temperatures in a town throughout the month of April in two consecutive years. The temperatures were recorded weekly at midday. On what dates was there a difference of 2 °C between the temperatures?

_____ (1)




73 Look at the grid below. Lara starts in A1 and moves across the grid following the directions. On which square does she finish? _____ (1)

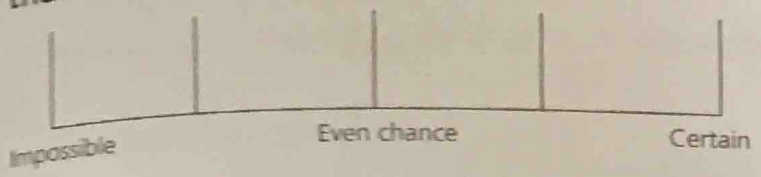



Start on A1
Move 2 squares North
Move 3 squares East
Move 2 squares North East
Move 3 squares North
Move 2 squares West
Move 1 square South
Move 2 squares South West

74 The Carroll diagram below shows the hair length of the children in a class.

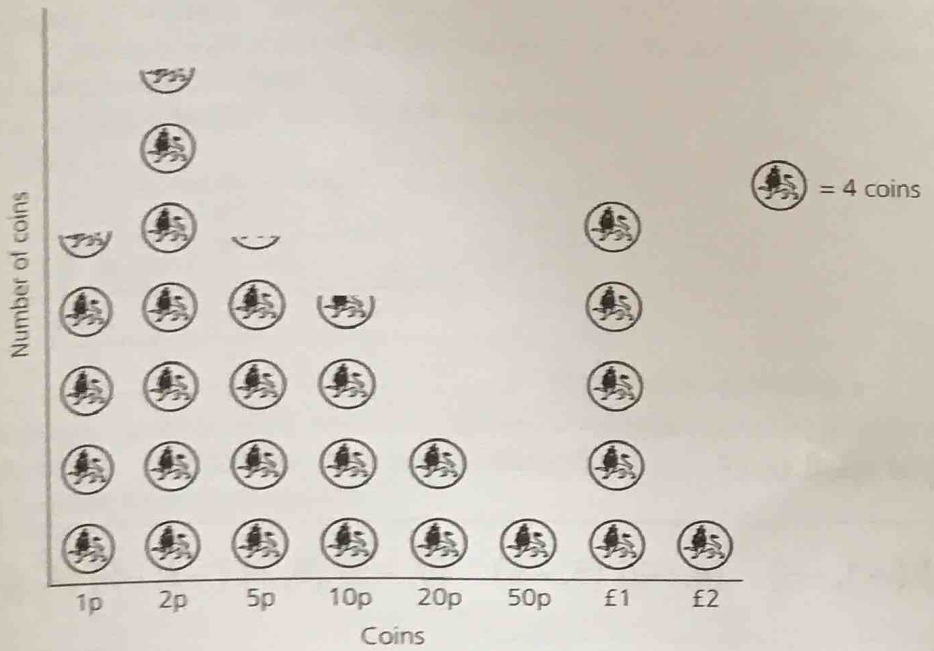
| | Long hair | Short hair |
|---|---|---|
| Boys | 2 | 7 |
| Girls | 13 | 4 |

A child is picked at random. Mark with an X the position that represents the probability that the child is a girl with long hair. (2)

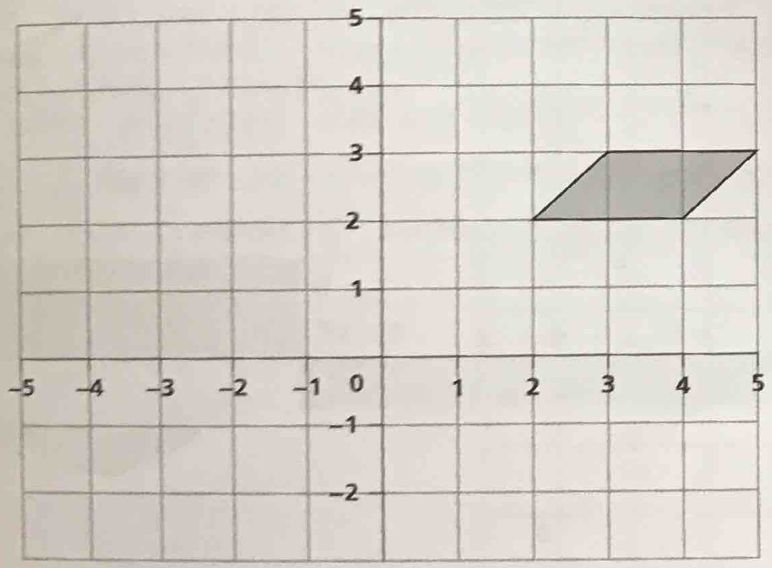



75 Krystian's office is 9 metres by 6 metres. Work out the area of his office and use this information to write down four different multiplication and division facts. (4)

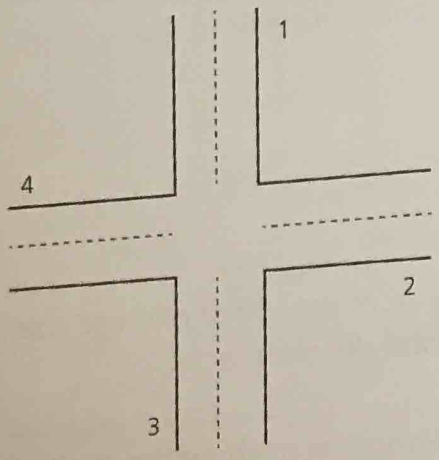
76 Todd emptied all the coins in his piggy bank and drew a pictogram to show the contents. How much money was in his piggy bank? _____ (5)



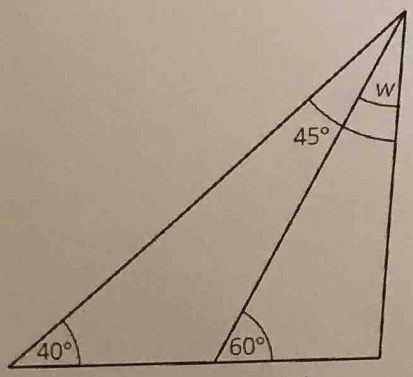

77 Rotate the parallelogram 90° anticlockwise about point O. (1)




78 At a set of crossroads controlled by traffic lights, each road gets a green light in turn. When one road has a green light, the other three roads have a red light. The lights are green for 30 seconds at a time.
Jensen arrives in a queue at road 4 just as the lights turn red. Each time the traffic lights on road 4 are green, 7 cars get through the lights. Jensen is 15 cars back. How long will he have to wait to get through the lights? _____ (2)




**79** Work out the size of angle $w$ in this diagram. _____ (3)




*Not drawn accurately*

**80** What does the code in the grid spell out?

_____ (1)

(−3, 2) (−6, −2) (3, 3) (−2, 5) (−1, −3) (4, −2) (5, −3) (0, −5) (6, 5) (−3, −5) (4, 1)