

2004 Preparation Test A:

Q1

$$\square + 75 = 200$$

$$\square + 65 = 300$$

$$\square + 45 = 400$$

$$5 \times \square = 125$$

$$4 \times \square = 160$$

$$7 \times \square = 280$$

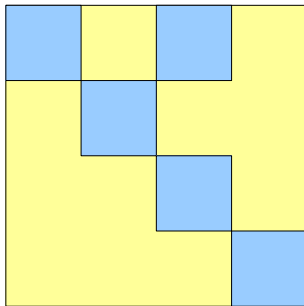
$$120 - 68 = \square$$

$$325 - \square = 175$$

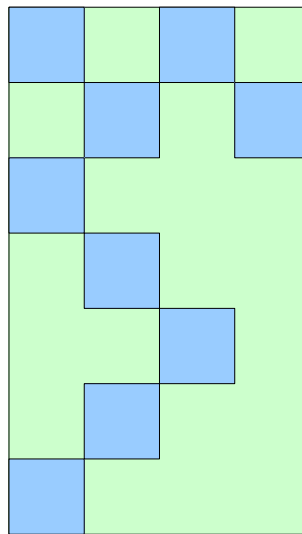
$$\square - 240 = 105$$

Q2: What fraction do blue parts represent?

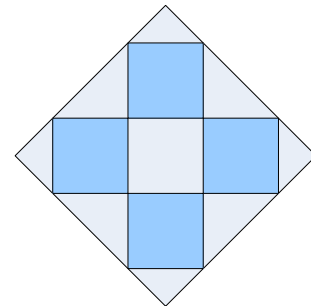
A



B



C

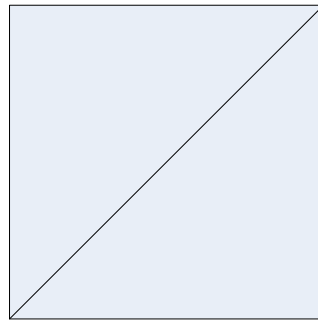
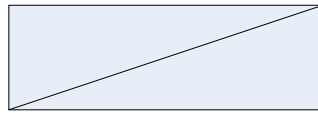
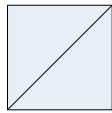


Q3

Sandwiches		Drinks		Fruit	
cheese	£1.35	milk	65p	apple	25p
tuna	£1.80	cola	75p	pear	30p
salad	£1.25	juice	55p	melon	45p

- How much more does a tuna sandwich and milk cost more than a cheese sandwich
- Barry buys a tuna sandwich, a salad and a pear. How much change does he get from a £5 note?
- Fred buys a cheese sandwich, some milk and two pears. How much does he pay?
- Emily buys two salad sandwiches, some juice and an apple. How much change does she get from a £10 note?
- Tom buys two cartons of milk and six apples. How much change does he get from £4.00?
- Holly buys three bottles of cola and a tuna sandwich. What change does she get from £5?
- Jack buys a drink and a piece of fruit. It costs him exactly 90p. Which items has he bought?
- James buys two different drinks and one sandwich. They cost exactly £3.20. Which items has he bought?

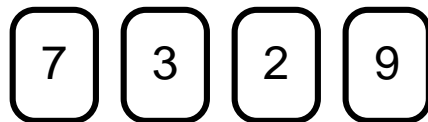
Q4 Measure the diagonal line to the nearest millimetre.



- a) What is the length of each line in mm?
- b) What is the length of each line in cm?
- c) What is the length of each line in m?

Q5

You have four number cards shown below.

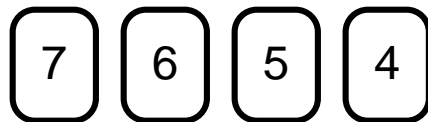


Use the number cards to make the answers to each of these problems an odd answer.

$$\boxed{\phantom{0}} + 4 = \quad \boxed{\phantom{0}} \times 5 =$$

$$\boxed{\phantom{0}} - 4 = \quad \boxed{\phantom{0}} \div 2 =$$

You have four number cards shown below.



Use the number cards to make the answers to each of these problems an odd answer.

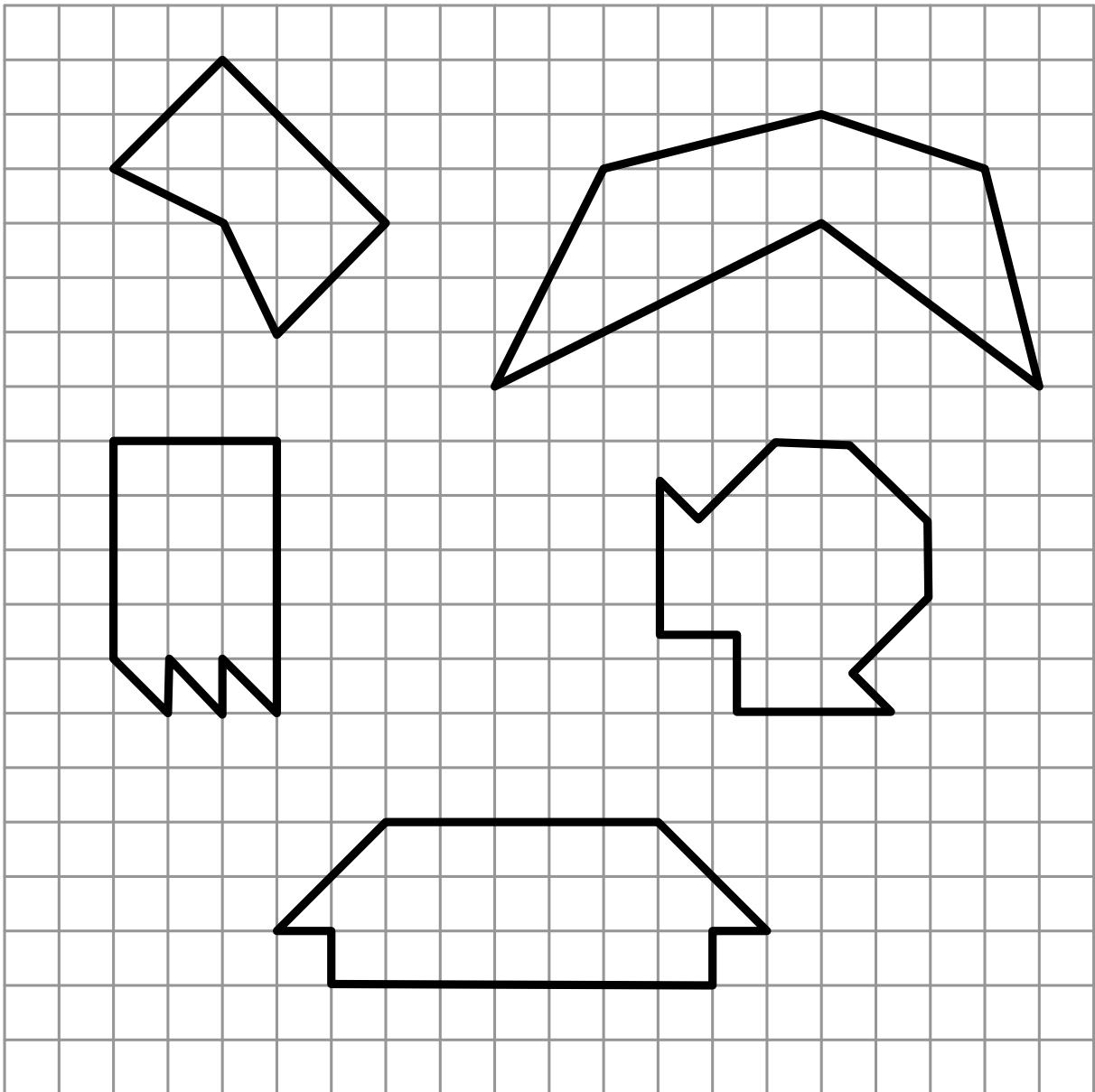
$$\boxed{\phantom{0}} + 8 = \quad \boxed{\phantom{0}} \times 5 =$$

$$\boxed{\phantom{0}} - 3 = \quad \boxed{\phantom{0}} \div 2 =$$

Q6.

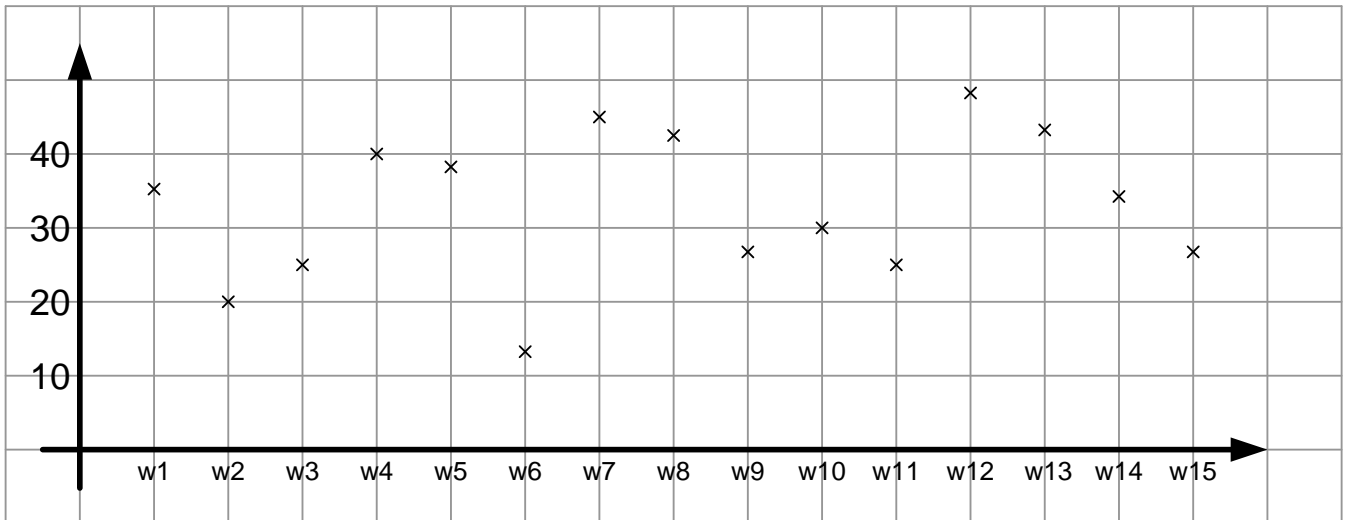
- a) David has 64 seeds and he has 4 pots. How many seeds does he need to plant in each pot?
- b) John has 4 pots. He plants 3 seeds in each pot and has 2 seeds left over. How many seeds did he start with?
- c) Sally has 35 seeds and she has 7 pots. How many seeds does she need to plant in each pot?
- d) Chene has six pots. She plants 7 seeds in each pot and has 4 left over. How many seeds did she have to start with?
- e) James has 8 shelves on his bookcase. He has 72 books. How many books does he put on each shelf to have the same number of books on each?
- f) Sally has 6 shelves on her bookcase. She puts 12 books on each shelf but finds that she has seven books left over. How many books does she have?
- g) Elliot has four friends. He divides his sweets so that he and his four friends get 8 sweets each. He has three sweets left over. How many sweets did he begin with?
- h) Charlotte has six friends. She divides her sweets so that she and her six friends have 9 each. She has 5 sweets left over. How many sweets did she start with?
- i) Napoleon decided to reorganise the year so that there were ten months instead of twelve. He wanted each month to have the same number of days. How many days did he put in each month and how many days were left over?
- j) Sir Walter Raleigh had three ships in his fleet. He assigned 73 sailors to each boat and he had one left over. How many sailors were there altogether?
- k) Christopher Columbus set sail with the Pinta, Nina and the Santa Maria. He assigned 56 sailors to each ship and had two left over. How many sailors did he have altogether?

Q7. Draw on the shapes below any lines of symmetry that may exist. Be careful to be accurate.



- Q8. a) Calculate  $17.8 + 9$   
b) Calculate  $18.3 - 9.5$   
c) Calculate  $23.73 - 4.8$   
d) Calculate  $382.039 + 482 + 48.39$   
e) Calculate  $24.489 - 3.9$   
f) Calculate  $7.9 - 4.8237$

Q9. Grace collected 2p coins. She kept a record of how many she collected over a period of 15 weeks. The information she had is shown in the chart below:



- How many weeks did she collect fewer than 30 coins?
- For how many weeks did she collect between twenty and forty coins?
- In which week did she collect the maximum amount of coins?
- In which week did she collect the minimum amount of coins?
- What is the range of the number of coins she collected each week?
- During which two weeks did she find the same number of coins?
- What is the difference between the number of coins she collected in week 6 and in week 15?
- How many times did she collect between twenty and thirty-five coins?

Q10. A shop sells lego. They have sets that cost the following prices in stock.

Set	Cost
Ewok Village	£199.99
Sydney Opera House	£249.99
Winter Cottage	£89.99
Star Wars Advent Calendar	£24.99
Volkswagon T1 Camper Van	£79.99

- If you were to buy all these things, how much would it cost?
- What is the difference in price between the most expensive and the least expensive?
- Which item is the median in terms of cost?
- What is the difference between the cost of the Sydney Opera House and the cost of the Volkswagon T1 Camper Van?
- Simon had three nephews. He wanted to buy them the Sydney Opera House to share and three Volkswagon T1 Camper Vans - one each. He had £450 in his bank account. Did he have enough money? If so, how much money would e left in his bank account? If not, how much more would he need?

Q11

- Tom and Harry meet in town at 4:35. They spend three quarters of an hour together. What time do they go their separate ways?
- Grace and Mya go to buy some shoes. They catch the 4:07 bus into town. The journey lasts 23 minutes. What time do they arrive in town?
- Jack went to see a movie. The show started at 10:05 am. The film lasted for one and a half hours. What time did the movie finish?
- Billy went to Leeds. He caught the seven minutes past ten morning train. He arrived at four- forty five in the afternoon. How long had the journey taken him?
- How long is it from 11:57 am until 2:06 am two days later?
- How long is it from 3:38 pm on Friday until 8:35 am on Monday?
- How long is it from 8:48pm on the 7th October until 11:35 on 24th November?
- How long is it from 9:46pm on 8th September until 4:42am on 12th December?

Q12

Put a number between 1 and 100 in each of the boxes so that it makes the column and row headings correct.

	A square number	An odd number	A prime number
A multiple of 7			
A factor of 24			
A triangular number			

Q13

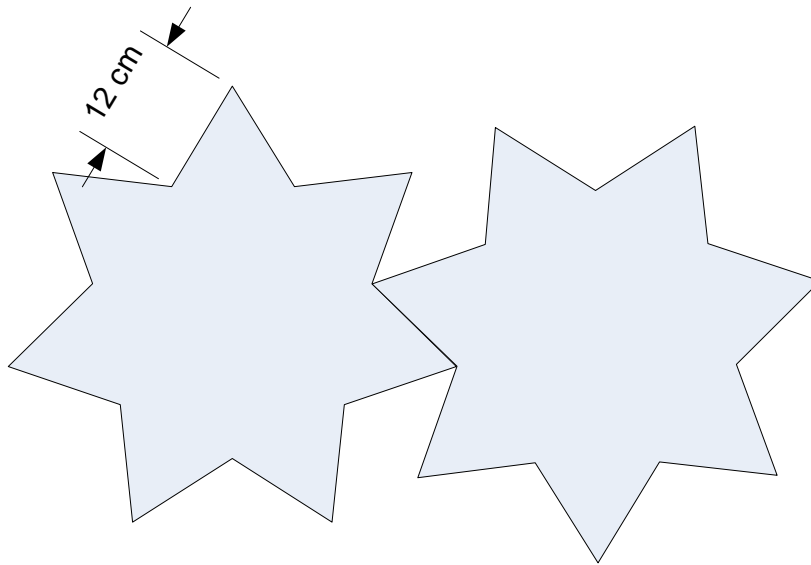
- Draw a net of a triangular prism.
- Draw a net of a cuboid.
- Draw a net of a hexagonal prism.

Q14. Fill in the missing numbers round the edge and on the grid.

<b>X</b>					9		
	35	42	14	28	63	21	
		18	6	12	27	9	36
	45	54	18	36	81		108
→	20	24	8		36	12	48
	125		50	100	225	75	300
	25	30	10	20		15	60
	10	12		8	18	6	24



Q15. All the sides of these stars are the same. What is the perimeter of this shape:



Q16. Calculate the following:

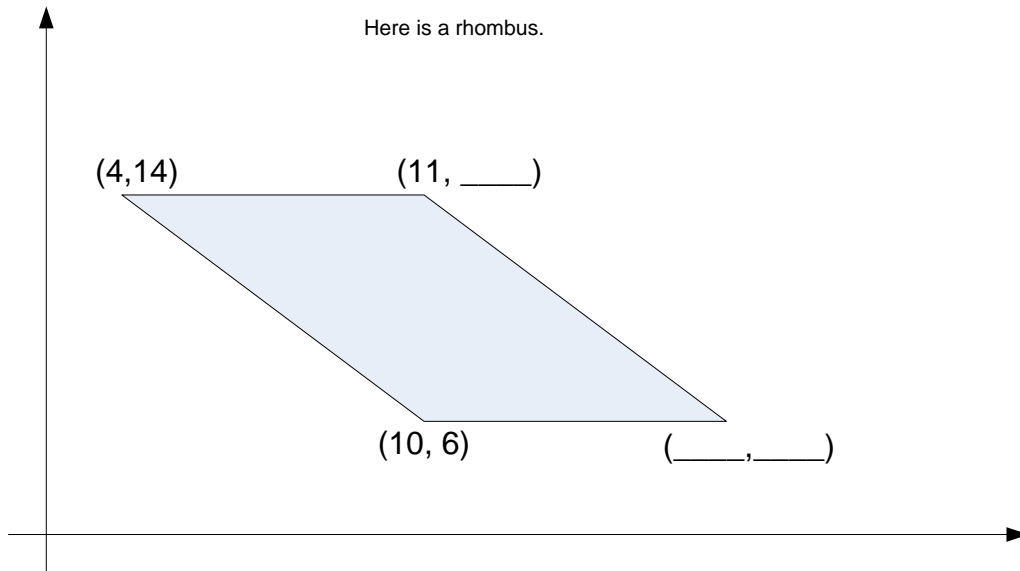
a)  $83.4 \times 6 =$

b)  $67.9 \times 9.4 =$

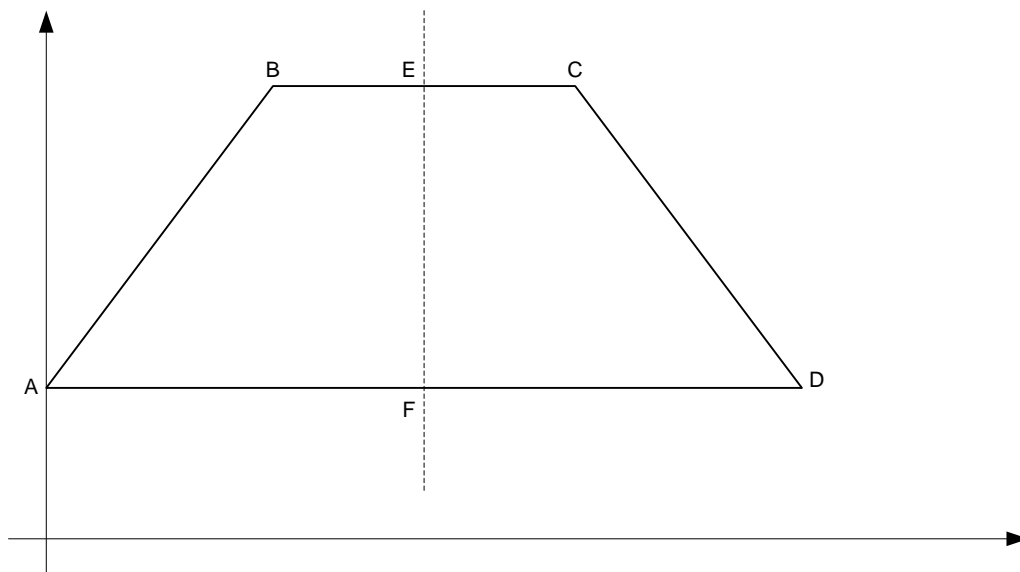
c)  $183.09 \times 17.4 =$

- Q17. a) DJ Jack is a radio disc jockey. For every 7 songs he plays that are old, he plays 4 new ones. Last week, he played 12 new songs. How many songs did he play altogether?
- b) For every 2 songs he plays that are old, he plays 9 new ones. Last week, he played 18 new songs. How many songs did he play altogether?
- c) For every 12 rock songs, Elliot plays 8 classical ones. Last week, he played 16 classical songs. How many songs did he play altogether?
- d) A disc jockey played 8 new songs for each 3 old songs that she played. If she played 77 songs altogether, how many new songs were played?
- e) A car dealer sold 20 red cars for every 12 black cars that they sold. If they sold 50 red cars, how many cars did they sell altogether?
- f) A commander found that he lost 13 men for every three tanks that the enemy destroyed. How many men did he lose if 18 tanks were destroyed?
- g) A printer made 23 Christmas cards for every 15 birthday cards that they made. If they made 722 cards altogether, how many Christmas cards did they make?

Q18.



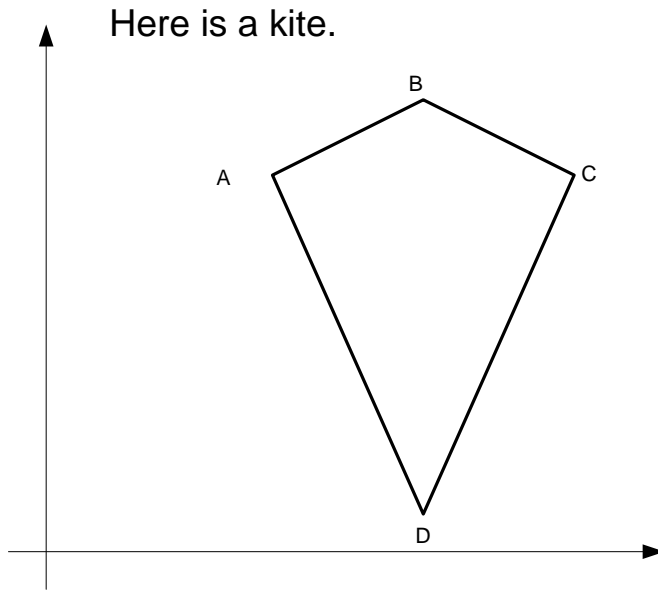
a) What are the missing co-ordinates?



ABCD is an isosceles trapezium with EF being an line of symmetry.

b) What are the co-ordinates of B, D and F if the co-ordinates of the other points are as follows:

A (0,12)      C(24,31)      E(18,31)



The co-ordinates of A, B and D are (8,16), (10,20) and (10, 1) respectively.

- c) What are the co-ordinates of C?
- d) If the co-ordinates were changed to the following co-ordinates instead, what would be the co-ordinates of the missing vertex?

B(24,36)      C(29.5, 30)      D(24,3)

- e) If the co-ordinates were changed to the following co-ordinates instead, what would be the co-ordinates of the missing vertex?

A(3.1,5.6)      B(6.5,7.8)      D(6.5,3)

Q19.

- a) Calculate  $(23 \times 12) + 19$
- b) Calculate  $23 \times (12 + 19)$
- c) Calculate  $23(12+19)$
- d) Calculate  $200 - (6 \times 12)$
- e) Calculate  $(200 - 6) \times 12$
- f) Calculate  $12(200 - 6)$
- g) Calculate  $(4 + 9)(4 + 7)(12 + 8)$
- h) Calculate  $249 - (48 \div 3)$
- i) Calculate  $(249 - 48) \div 3$
- j) Calculate  $(x + 7)(2x - 3)$

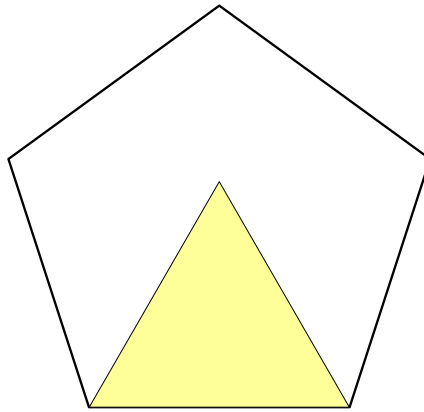
Q20 Below is an extract from a railway timetable.

Mirfield	10:08	10:37	10:51	11:08	-	11:51
Huddersfield	-	11:02	-	11:23	11:23	11:59
Leeds	10:31	11:58	-	11:46	-	12:28
Wakefield	10:48	12:25	11:13	-	12:07	12:53
Bradford	11:29	12:35	11:34	12:14	-	-

- a) If you wanted to get to Bradford for quarter past twelve, what is the latest train you could catch from Leeds?
- b) If you needed to be in Wakefield for twelve noon, what is the latest train you could catch from Huddersfield?
- c) How long is the journey from Mirfield to Bradford on the 10:37 train?
- d) How much time could you save on the 11:23 service from Huddersfield to Wakefield when compared to the 11:02 service?
- e) What is the fastest time from Mirfield to Leeds?
- f) Holly needs to be in Wakefield for 11 o'clock. She lives in Leeds. Can she do this and what time is the service she must catch?
- g) Catching the 11:51 from Mirfield, Robbie needs to be in Wakefield for ten to one. Will he make it? If not, what is the latest train he could have caught?

- Q21
- a) Calculate 5% of £2400
  - b) Calculate 20% of £480
  - c) Calculate 35% of £260
  - d) Calculate 45% of £840
  - e) John spends 55% of his money. He has £450 left. How much did he begin with?
  - f) Emily spends 42% of her money. She has £290 left. How much did she begin with?
  - g) Calculate 48% of £294
  - h) Calculate 34% of 829
  - i) A shop increases its price on a shirt by 25%. The new price is £25. What was the original price?
  - j) A car show room runs a sale. Cars are reduced by 26% from their original price. A car now costs £12400. How much was it originally?
  - k) Calculate 17.5% of 28300

Q22 Both these shapes are regular.



- a) If the perimeter of the triangle is 39cm, what is the perimeter of the pentagon?
- b) If the perimeter of the pentagon is 110cm, what is the perimeter of the triangle?
- c) If the perimeter of the triangle is 21cm, what is the perimeter of the pentagon?
- d) If the perimeter of the triangle is 42cm, what is the perimeter of the pentagon?

Q23

n	1	2	3	4	5	6
$X_n$	9	24	45	72	105	144

Which of the following formulae calculate this sequence?

$$2n(n+5)$$

$$n^2+7$$

$$3(2n+2)$$

$$6n(n+1)$$

$$3n(n+2)$$