



Pocklington School 13+ Mathematics 2024

Sample 2

1 Hour

Name	
------	--

- Calculators are not allowed
- Write your answers in the spaces provided
- Show all working in the spaces provided

Q1.

Calculate the following, showing a clear method where appropriate:

(a) $4 \times (5^2 - 6 \times 2)$

.....
(2)

(b) $5471 + 85.1 + 7.163$

.....
(2)

(c) 3.2×1.7

.....
(2)

(d) $21.6 \div 0.8$

.....
(2)

(e) $5^3 \times 2$

.....
(2)

(f) $2187 \div 9$

.....
(2)

(Total for question = 12 marks)

Q2.

Solve the following equations:

(a) $7y = 84$

$$y = \dots\dots\dots (1)$$

(b) $\frac{x}{5} = 80$

$$x = \dots\dots\dots (1)$$

(c) $6x + 14 = 74$

$$x = \dots\dots\dots (2)$$

(d) $h^2 = 144$

$$h = \dots\dots\dots (2)$$

(e) $5(3x + 1) = 65$

$x = \dots\dots\dots$

(3)

(Total for question = 9 marks)

Q3.

Round the following numbers to the accuracy stated in the brackets:

(a) 658432 (3 significant figures)

$\dots\dots\dots$
(1)

(b) 0.86701 (1 significant figure)

$\dots\dots\dots$
(1)

(c) 7.95899 (2 decimal places)

$\dots\dots\dots$
(1)

(d) 68.97527 (1 decimal place)

$\dots\dots\dots$
(1)

(Total for question = 4 marks)

Q4.

Simplify these expressions:

(a) $8x + 3y - 6x + 9y$

$\dots\dots\dots$
(2)

(b) $18 + 6q - 3p^2 - 2q - 5 + 4p^2$

.....
(2)
(Total for question = 4 marks)

Q5.

Calculate the following. You must show all your working out. Give your answers as mixed numbers in their simplest form.

(a) $3\frac{1}{3} - 1\frac{1}{4}$

.....
(3)

(b) $\frac{2}{7} \div \frac{4}{21}$

.....
(2)
(Total for question = 5 marks)

Q6.

Expand these brackets and simplify where possible:

(a) $5(3x + 2)$

.....
(2)

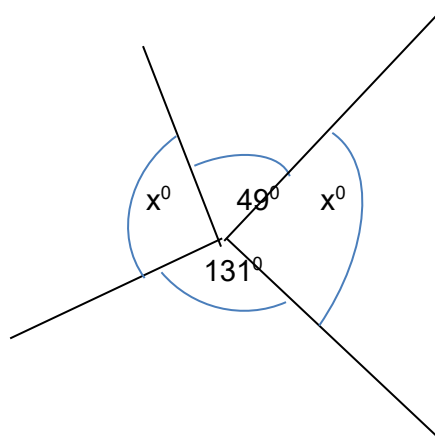
(b) $2(4x + 3) - 3(x + 4)$

.....
(3)
(Total for question = 5 marks)

Q7.

Calculate the size of angle x from the diagram below:

DIAGRAM NOT TO SCALE



Angle x =

(Total for question = 2 marks)

Q8.

Last year a brand new house cost £320000.

It increases in value by 5% each year.

How much will it be worth when it is 1 year old?

£

(Total for question = 2 marks)

Q9.

(a) Write these numbers in order with the smallest first.

83.247 83.047 80.472 83.147 82.047

.....

(2)

(b) Write down the next 3 terms in each of these sequences:

i. 5, 9, 13, 17, 21,

ii. (c)-3, -8, -13, -18, -23,

iii. 1, 3, 6, 10, 15,

iv. 5.3, 6.4, 7.5, 8.6, 9.7,

(4)

(Total for question = 6 marks)

Q10.

- (a) A car is travelling at 45 miles per hour. It continues at this speed for 3 hours. How far will it travel in this time?

..... miles

(Total for question = 2 marks)

Q11.

Here is part of a train timetable from Beverley to London.

It shows the time in 24 hour clock, that the trains leave Beverley and arrive in London.

Beverley	06:02	.....	.....	.....	.....	.....	.....
Hull	06:26	08:23	10:30	12:33	15:13	17:10	19:11
Brough	06:38	08:36	10:43	12:45	15:25	17:22	19:23
Howden	06:49	08:47	10:56	12:56	15:36	17:35	19:34
Selby	07:00	09:01	11:06	13:06	15:47	17:45	19:45
Doncaster	07:21	09:25	11:25	13:25	16:05	18:03	20:03
Retford	07:40	09:39	11:39	13:39	16:19	18:17	20:17
Grantham	08:03	10:01	12:01	14:01	16:40	18:39	20:40
Stevenage	.....	.....	.....	.....	.....	.....	.....
London	09:13	11:10	13:07	15:10	17:45	19:45	21:46

Jenny wants to arrive in London by 12:00 and she gets the latest train possible.

She arrives at Hull train station at 08:15.

(a) How long will she have to wait at Hull train station?

..... minutes

(2)

(b) How long does the 06:02 train take to get to London?

..... hours and minutes

(1)

Jake arrives at Selby station at 19:32. He gets the next train to London.

(c) How long will this train take to get to London?

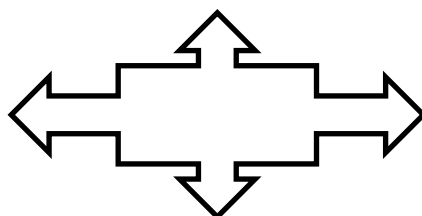
..... hours and minutes

(2)

(Total for question = 5 marks)

Q12.

Look at the shapes below and draw on any lines of symmetry with a ruler.



(Total for question = 2 marks)

Q13.

Share \$270 in the ratio 2:7

£ : £.....

(Total for question = 2 marks)

Q14.

Write these fractions as decimals:

(a) $\frac{35}{100}$

.....
(1)

(b) $\frac{57}{10}$

.....
(1)

(Total for question = 2 marks)

Q15.

Calculate answers to the following expressions, when $a = 4$, $b = -3$ and $c = 2$.

(a) $4bc + 2a^2$

.....
(3)

(b) $(c + b)^2$

(c) $\frac{c^2}{4} + 2a$

.....
(2)

.....
(2)

(Total for question = 7 marks)

Q16.

- (a) Find the area of the shape below. Show all your working out and state the units of your answer.

.....

(4)

Find the perimeter of this shape.

.....

(2)

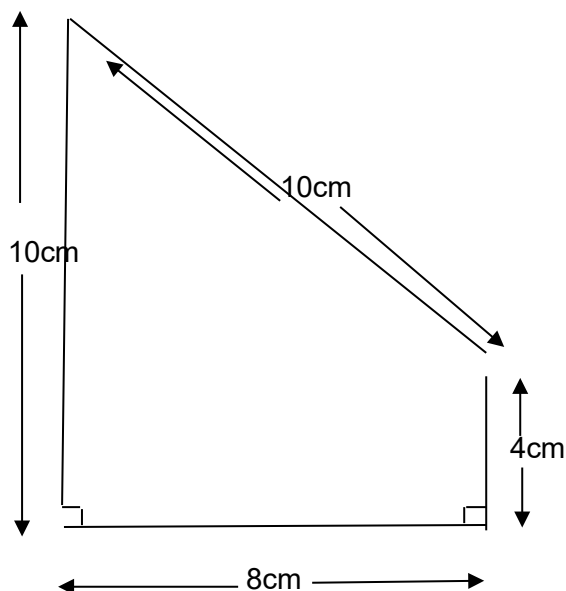


DIAGRAM NOT TO SCALE

(Total for question = 6 marks)

Q17.

Below is a table showing the cost of stamps.

Weight of Envelope (g)	Destination and Cost (£)	
0-60	Britain £0.65	USA £1.30
61-100	Britain £1.23	USA £1.55
101-200	Britain £1.45	USA £1.70
201-400	Britain 1.90	USA £2.15

(a) Write down the cost of posting an envelope weighing 55 grams to the USA.

£
(1)

(b) b. Calculate the cost of sending two envelopes weighing 120 grams each in Britain.

£
(2)

(Total for question = 3 marks)

Q18.

20 children were asked how many hours per week they spent watching television.

These are the results:

5 7 4 3 6 5 5 2 4
6 7 2 5 4 4 3 7 6

Complete the tally chart showing the number of hours of television watched by this group of children.

Number of Hours	Tally	Frequency
2		
3		
4		
5		
6		
7		

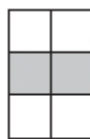
(Total for question = 2 marks)

Q19.

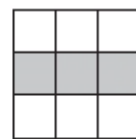
Here is a sequence of patterns made with grey squares and with white squares.



pattern number 1



pattern number 2



pattern number 3

(a) In the space below, draw pattern number 4

(1)

A pattern in the sequence has 10 grey squares.

(b) How many white squares does the pattern have?

.....
(1)

A pattern in the sequence has a total of 45 squares.

(c) (i) How many grey squares does the pattern have?

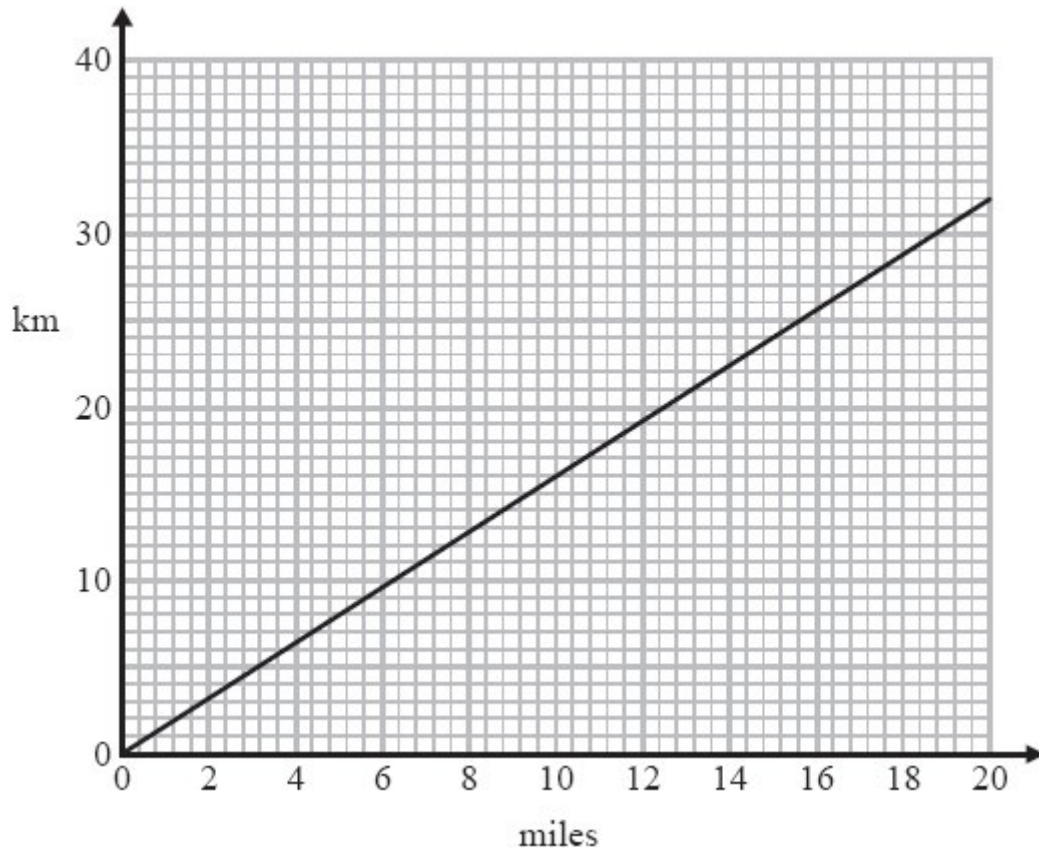
.....
(ii) Explain how you found your answer.
.....
.....

(2)

(Total for question = 4 marks)

Q20.

You can use this graph to change between km and miles.



(a) Change 18 miles to km.

..... km
(1)

(b) Change 13 km to miles.

..... miles
(1)

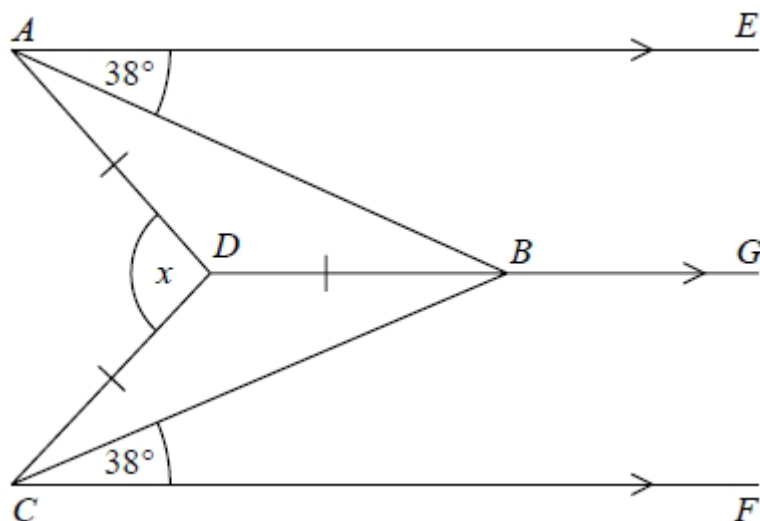
Chris drives 250 km.
He then drives 100 miles.

(c) Work out, in miles, the total distance Chris drives.

..... miles
(2)

(Total for question = 4 marks)

Q21



AE, DBG and CF are parallel.

DA = DB = DC.

Angle EAB = angle BCF = 38°

Work out the size of the angle marked x.

You must show your working.

.....°

(Total for question = 3 marks)

Q22.

There are only red beads and green beads in a bag.

number of red beads : number of green beads = 1 : 4

There are 35 red beads in the bag.

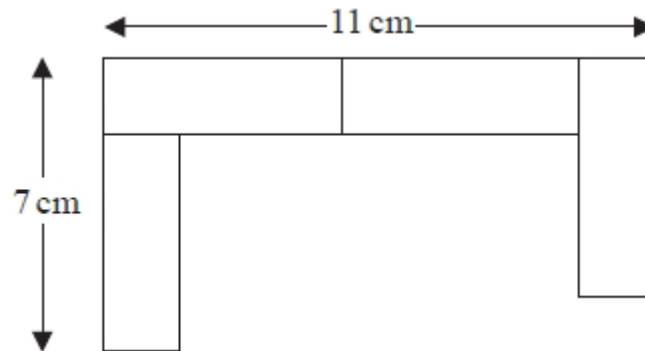
Work out the total number of beads in the bag.

.....

(Total for question = 2 marks)

Q23.

A pattern is made using identical rectangular tiles.



Find the total area of the pattern.

..... cm²

(Total for question = 4 marks)

Q24

Write down **three** different factors of 20

.....,,

(Total for question = 2 marks)

Q25

Write down the value of 7^2

.....
(Total for question = 1 mark)

END OF QUESTIONS (100 MARKS)