



King's High School

Department of Mathematics

# Entrance Examination Mathematics 2007

**TIME**      45 minutes

## INSTRUCTIONS FOR CANDIDATES

This paper contains 24 questions.

Answer as many questions as you can in the spaces provided.

Put your final answer in the boxes provided underneath the question.

Marks are available for working so you **must** show how you arrived at your answer in the space before the answer box.

If you can't do a question, leave it out and go onto the next one.

Don't worry if you don't finish this paper – most of you won't.

If you finish early make sure you have attempted every question and not missed a page.

You **MAY NOT** use a calculator

Write your name in the box provided below

Name:

### Question 1

Work out

$$5987 + 67 + 983$$

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### Question 2

Work out

$$5183 - 594$$

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### Question 3

Work out

$$6846 \times 8$$

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**MORE QUESTIONS FOLLOW**

**Question 4**

Work out  
 $52836 \div 7$

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**Question 5**

Work out  
 $863 \times 37$

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**Question 6**

Work out  
 $15 - 8 \cdot 36$

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**Question 7**

Work out

$$34 \cdot 2 + 2 \cdot 96 + 0 \cdot 0364$$

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**Question 8**

What is the value of the 8 in the number 768354

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**Question 9**

Work out

$$36 \cdot 42 \times 1000$$

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**Question 10**

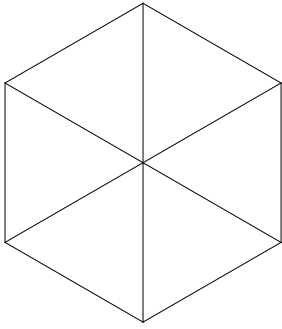
Work out

$$26 \cdot 1 \div 10000$$

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### Question 11

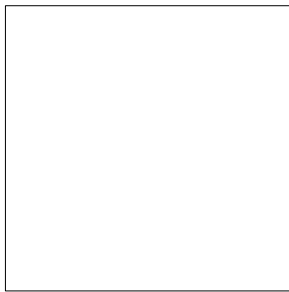
What is the order of rotational symmetry of the following shape?



### Question 12

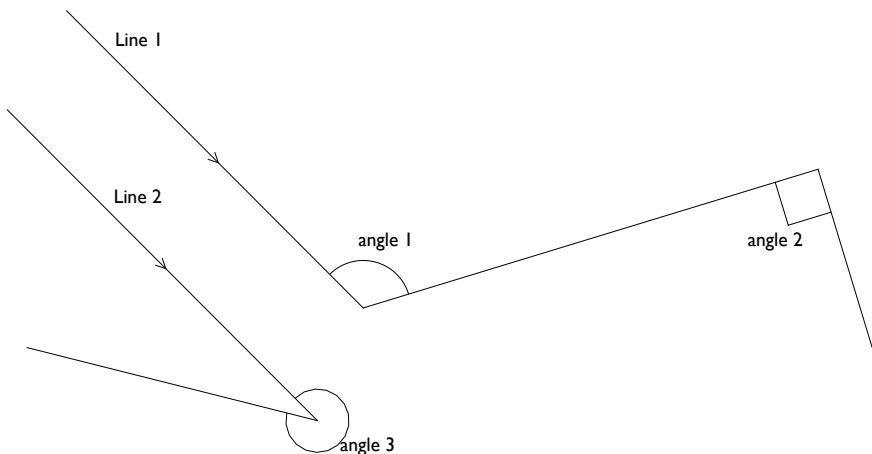
Here are two shapes.

Draw on their lines of symmetry (mirror lines)



### Question 13

Study this picture and then fill in the missing words in the sentence underneath.



Line 1 is  to line 2. Angle 1 is an example of an  angle.

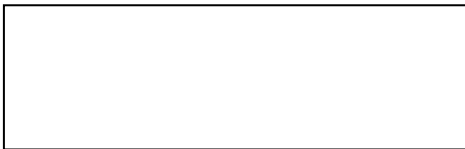
Angle 2 is a  angle. Angle 3 is an example of a  angle.

### Question 14

A room is 7 metres long, 4 metres wide and 3 metres high.  
Work out the area of the floor in square metres.



Work out the cost of carpeting the floor if the carpet costs £12 per  $\text{m}^2$



Work out the area of one long wall



Work out the area of one short wall

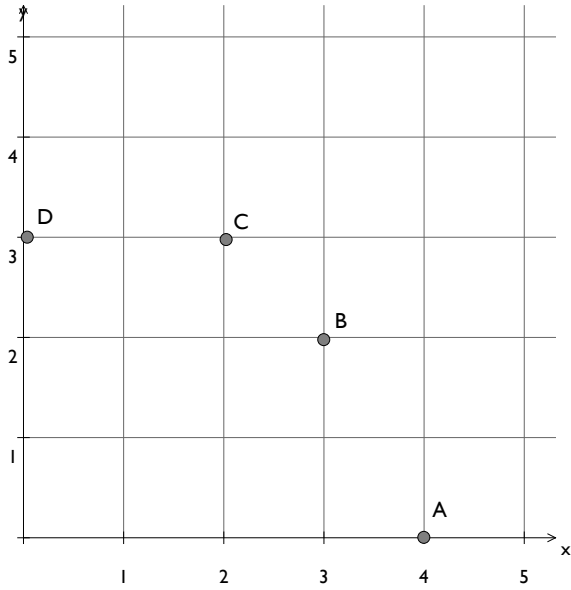


Work out the total area of the 4 walls and the ceiling



### Question 15

Study the graph below and then answer the questions



What are the coordinates of the point D?

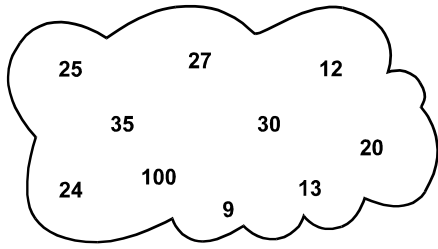
Which is the point with coordinates (3, 2)?

Write down the coordinates of a point which is the same distance from D as it is from C

If you draw a line going from A passing through B and then kept going, what would be the coordinates of where the line hits the y axis?

### Question 16

From the numbers in the cloud,



Write down those numbers that 2 will divide into exactly.

Write down those numbers that 10 will divide into exactly.

Write down any prime numbers

Write down any square numbers

Write down the number which is double one of the other numbers.



**Question 17**

Complete the table for 272

Ways of getting 192	Ways of getting 272
$12 \times 16 = 192$	$17 \times 16 = 272$
$24 \times 8 = 192$	$34 \times \boxed{\phantom{00}} = 272$
$48 \times 4 = 192$	$68 \times \boxed{\phantom{00}} = 272$
$96 \times 2 = 192$	$\boxed{\phantom{00}} \times \boxed{\phantom{00}} = 272$

**Question 18**

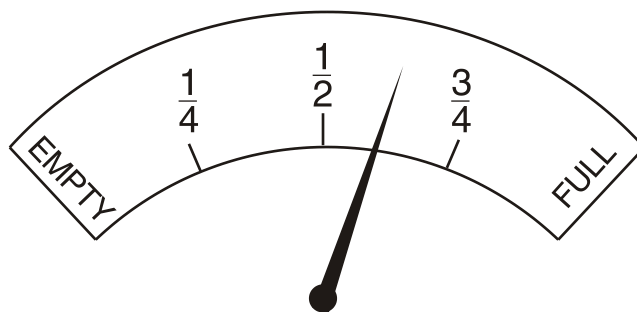
A first class stamp costs 26p.

What is the greatest number of first class stamps you can buy for £2?

Jean buys 10 first class stamps. She pays with a £5 note.  
How much change should she get?

### Question 19

This dial shows how much petrol is in the petrol tank of a car.



The full petrol tank holds 40 litres.

Estimate how many litres are left in the petrol tank.

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### Question 20

Mary has a bag of 20 sweets.

10 of the sweets are red.

3 of the sweets are black.

The rest of the sweets are white.

Mary chooses one sweet at random.

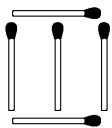
What is the probability that Mary will choose a

Red sweet

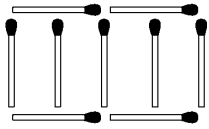
White sweet

## Question 21

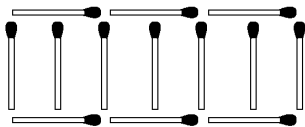
Here are some patterns made out of matches



pattern  
number 1



pattern  
number 2



pattern  
number 3

Draw a diagram for pattern number 4



Complete the table to show the number of matchsticks needed for pattern numbers 2,3,4 and 5

pattern number	number of matchsticks
1	5
2	
3	
4	
5	

Which pattern number needs exactly 41 matches?

### Question 22

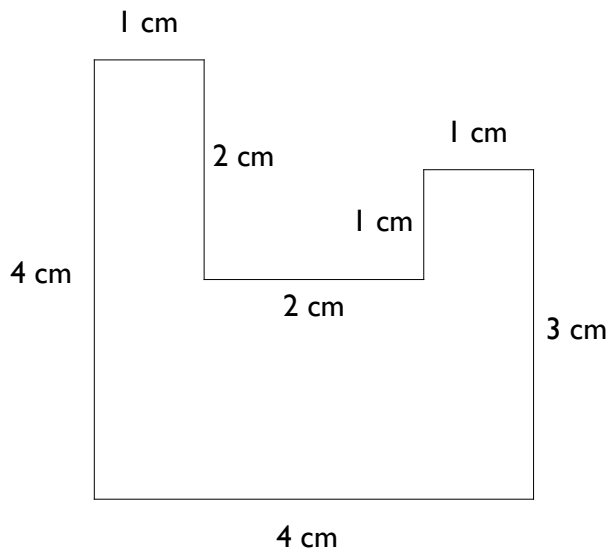
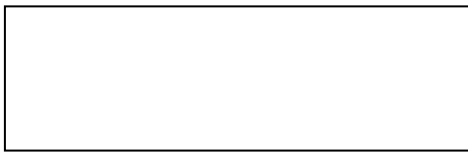
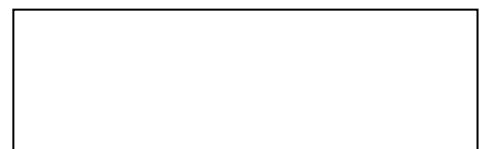


Diagram NOT accurately drawn

Work out the perimeter of the shape above



Work out the area of the shape above



**Question 23**

Sophie and Janet weigh a total of 159 kg. Sophie weighs 11 kg more than Janet.

How much does each girl weigh?

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### Question 24

Some of the figures in the following problems are missing.

Fill in the missing figures

(Adding)

$$\begin{array}{r} \phantom{+} 1 \phantom{0} 2 \phantom{0} 5 \phantom{0} 3 \\ \phantom{+} 2 \phantom{0} \square \phantom{0} 6 \phantom{0} 4 \\ + \phantom{0} 4 \phantom{0} 3 \phantom{0} \square \phantom{0} 5 \\ \phantom{+} 6 \phantom{0} 1 \phantom{0} 2 \phantom{0} \square \\ \hline \square \phantom{0} 4 \phantom{0} 6 \phantom{0} 2 \phantom{0} 1 \end{array}$$

(Multiplying)

$$\begin{array}{r} \phantom{0} 2 \phantom{0} 5 \phantom{0} 4 \\ \phantom{0} \phantom{0} \square \phantom{0} \square \\ \hline \square \phantom{0} \square \phantom{0} \square \phantom{0} 2 \\ \square \phantom{0} \square \phantom{0} 8 \phantom{0} 0 \\ \hline \square \phantom{0} \square \phantom{0} \square \phantom{0} \square \end{array} \times$$