



KENT COLLEGE

————— CANTERBURY —————

Entrance Examination 2013

Mathematics

Time allowed: 1 hour

NAME:

Read the following carefully:

- Start at the beginning and work through the questions as quickly and as carefully as you can.
- If you try a question and find that you cannot answer it, leave it and go on to the next.
- Do any working in the space provided
- **Do not use a calculator**

- 1) a) Write in figures the number eight thousand and twenty-four

Answer (1)

- b) Write in words the number 75 065

Answer..... (1)

- c) What is the value of 6 in each of the following numbers?

1567 Answer.....(1)

4629 Answer(1)

- 2) Calculate and show all your working,

a) $272 + 78 + 15 =$

b) $7837 - 2341$

Answer(1)

Answer(1)

c) $54 \times 7 =$

d) $495 \div 3 =$

Answer(1)

Answer(1)

e) $62 \cdot 71 + 14 \cdot 7$

f) $53 - 11 \cdot 7$

Answer(1)

Answer(1)

g) $637 \times 53 =$

Answer(3)

3) Sally has these number cards:

8

5

9

2

a) What is the largest 3-digit number she can make?

Answer(1)

b) What is the largest 4-digit number she can make?

Answer(1)

c) What is the smallest 4-digit number she can make?

Answer(1)

d) Make a number between 7500 and 8300,
using only the card numbers.

Answer(1)

4) A bar of chocolate costs 64p.

a) How many bars can be bought for £5

Answer(1)

b) How much money will be left?

Answer(1)

5) Work out

a) $45 - 12 + 9$

b) $40 - 15 \div 5$

Answer.....(1)

Answer.....(1)

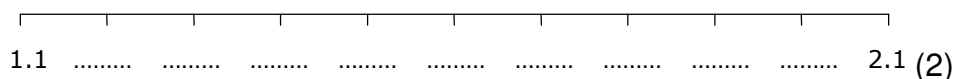
6) John is trying to reach a high shelf which is 3.1 m off the ground. John is 1.76 m tall. Standing on tiptoes adds 12 cm to his height, and stretching out his arms adds $\frac{1}{2}$ m to his height.

John stands on a chair 0.64 m high, on tiptoes, and stretches out his arms. How far below the shelf, in centimetres, are his hands?

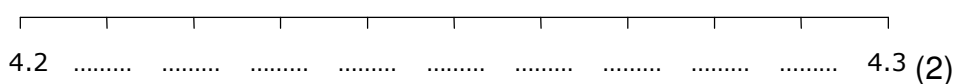
..... cm (3)

7) Fill in the missing numbers on the number lines below.

a



b



8) Solve the percentage problems.

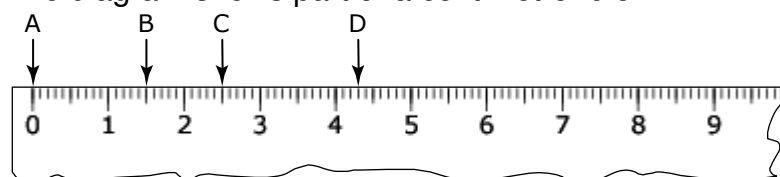
a I drink 25% of my carton of apple juice. What percentage is left?

..... % (1)

b 34% of students walk to school. What percentage of pupils do not walk to school?

..... % (1)

9) The diagram shows part of a centimetre ruler.



Write down the distance from:

a A to B **b** C to D

(2)

10) **Use numbers from the list below** to answer each question.

12 17 23 28 30 45 48 49 60

a Write down a multiple of 9.

b Write down a factor of 24.

c Write down a prime number.

d Write down a square number.(4)

11) Place the following sets of numbers in order, smallest first.

a 3.5, 3.44, 3.04, 3.05

.....

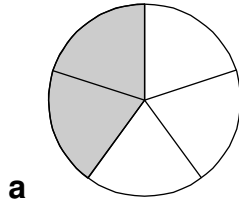
b 0.93, 0.903, 0.093, 0.9

.....

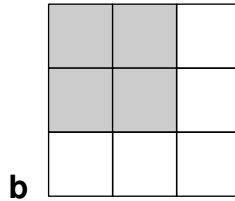
c 105 minutes, 1 hour and 5 minutes, 1.5 hours, 1 hour and 50 minutes

.....(3)

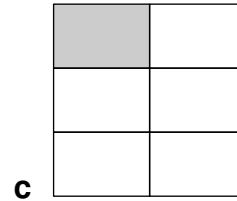
12) What fraction of each shape is shaded.



.....



.....



.....(3)

13) a) Find $\frac{1}{2}$ of 56

.....(1)

b) Find $\frac{3}{4}$ of 56

.....(1)

b) Find $\frac{2}{3}$ of 36

.....(1)

14) Find the missing terms in each sequence.

a 2, 11, 20, 29,

b 23, 19, 15, 11,,

c 5, 8, 14, 23,

(4)

15) Write in the missing numbers.

$$4 \times 60 = \dots\dots\dots$$

$$4 \times \dots\dots\dots = 560$$

$$56 \div \dots\dots\dots = 7$$

$$15 \times \dots\dots\dots = 105$$

(2)

16) A bucket holds 8.47 litres. What is this to the nearest litre?(1)

17) Write an expression for each of the following.

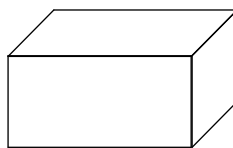
For example, the number that is 4 more than y is **$y+4$**

a The number that is twice as large as x

b The number that is half as large as p

c The number that is 6 less than r (3)

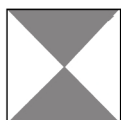
18)



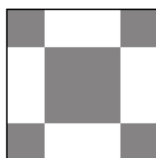
- a** Label an edge, a vertex and a face on the diagram of a cuboid above.(3)
- b** How many faces does a cuboid have?(1)
- c** How many edges does a cuboid have?(1)
- d** How many vertices does a cuboid have?.....(1)

19) Draw all the lines of symmetry on each of these shapes.

(a)



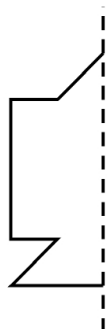
(b)



(4)

20) Complete these symmetrical shapes. The dotted lines are mirror lines.

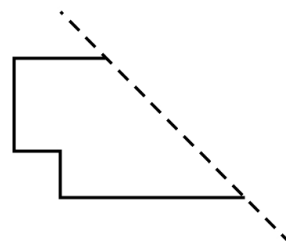
(a)



(b)



(c)



(6)

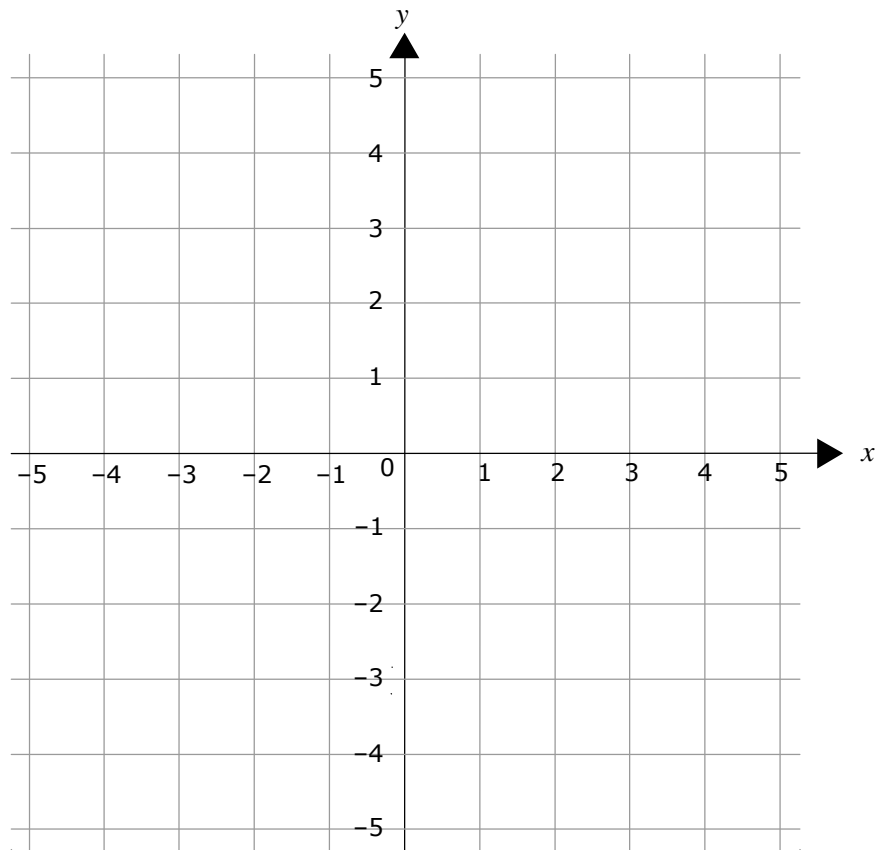
21) Sarah says, "I am thinking of a number, I then multiply that number by 6 and then subtract 7 and the answer is 23".

What number is Sarah thinking of?(2)

22) **a** Plot and label the points $A(1, 4)$, $B(4, -2)$ and $C(0, -4)$ on the grid.

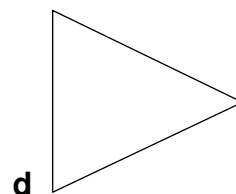
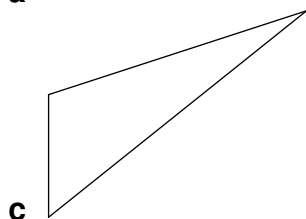
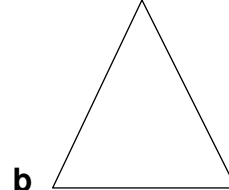
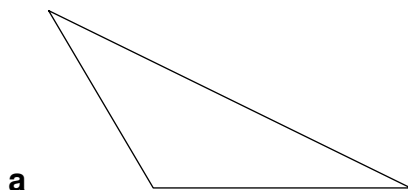
A , B and C are three corners of a rectangle, $ABCD$.

b Write down the coordinates of the fourth corner, D . (.....,)



(3)

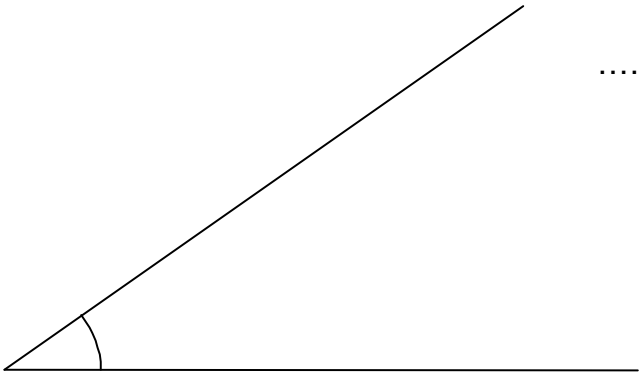
23) Which of these triangles are isosceles triangles?



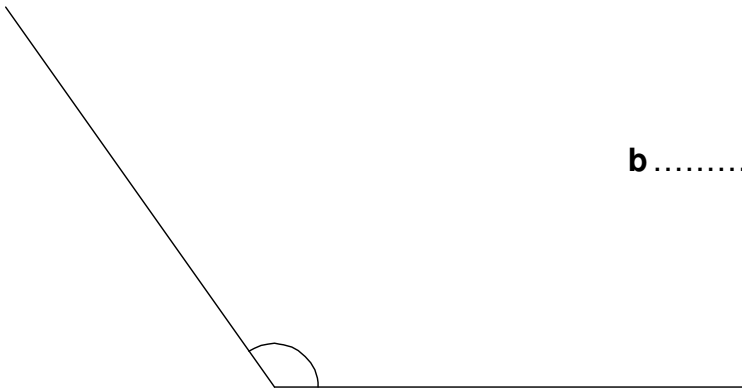
.....(2)

24) Measure the size of each of the following angles.

a



.....°

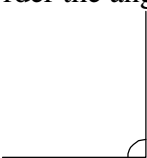


b.....°

(2)

25) Order the angles below from smallest to largest.

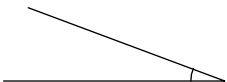
a



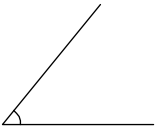
b



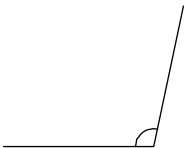
c



d



e



f



.....(3)

26) Convert each amount to the given units.

a 2.5 m = cm

b 880m = km (2)

27) Choose one of the words in the box to describe the chance of each of the following events occurring.

Impossible Very unlikely Unlikely Evens Likely Very likely Certain
--

- a** You will get a head when you throw a coin.
- b** You will go to school on Christmas day.
- c** The person nearest to me will fall off the chair in the next minute
.....
- d** You will read something tomorrow.(4)

28) A train leaves Ashford station at 10.47am and arrives in London at 12.24pm

How long did the journey take?

.....(2)

- 29) **a)** Work out 25% of £48(1)
- b)** Work out 10% of £25(1)
- b)** Work out 50% of 240(1)

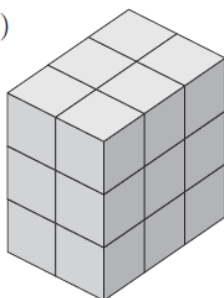
30) 8, 7, 12, 9, 9, 11, 15, 8, 7, 10

Find the mean of these numbers.

.....(2)

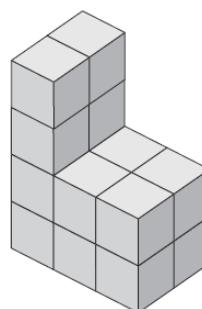
31) How many cubes are needed to make these shapes?

(a)



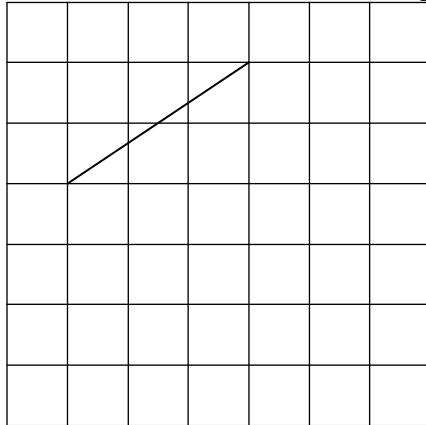
.....cubes

b)



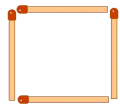
.....cubes

32) Draw **three more** lines on the grid below to make a **square**.

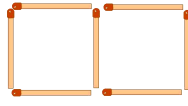


(1)

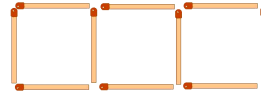
33) The diagram shows a pattern made of matches.



Pattern 1



Pattern 2



Pattern 3

a Draw the next pattern in the diagram.

b Complete the table to show the number of matches in each pattern. (1)

Pattern	1	2	3	4
Number of matches	4			

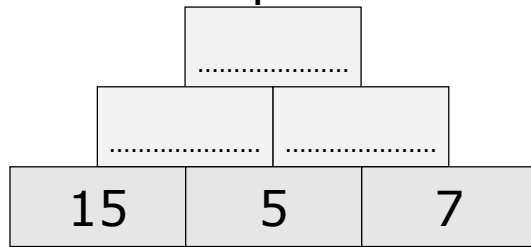
(2)

c How many matches will there be in Pattern 5? (1)

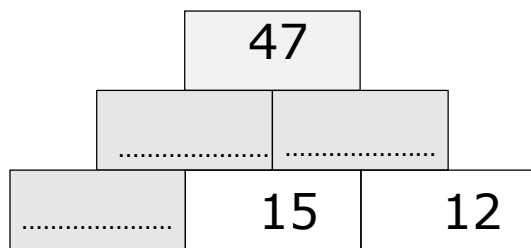
d How many matches will there be in Pattern 100?..... (1)

34)

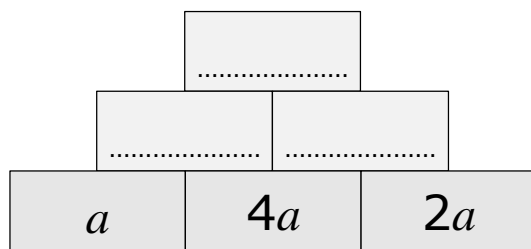
Complete each of the following 'brick walls'. Make sure that the 'bricks' next to each other **add up to the 'brick' above them**.



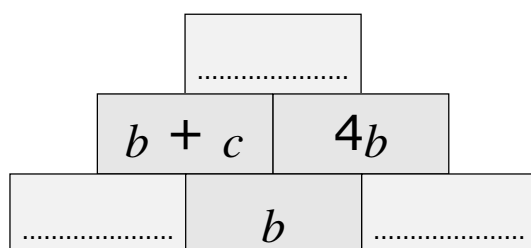
(3)



(3)



(3)



(3)

- 35) (a) I am thinking of a number.
My number is a **multiple of 4**

Tick (✓) the true statement below.

My number
must be even

☐

My number
must be odd

☐

My number
could be odd or even

☐

Explain how you know.

(1)

- (b) I am thinking of a **different** number.
My number is a **factor of 20**

Tick (✓) the true statement below.

My number
must be even

☐

My number
must be odd

☐

My number
could be odd or even

☐

Explain how you know.

(1) mark

- 36) You can make different colours of paint by mixing red, blue and yellow in different **proportions**.

For example, you can make green by mixing **1 part blue** to **1 part yellow**.

- (a) To make purple, you mix 3 parts red to 7 parts blue.

How much of each colour do you need to make **20 litres** of purple paint?

Give your answer in litres.

..... litres of red and litres of blue

(2)

- (b) To make orange, you mix **13 parts yellow** to **7 parts red**.

How much of each colour do you need to make **10 litres** of orange paint?

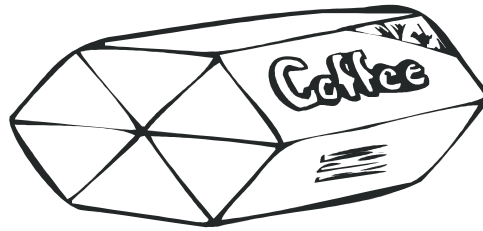
Give your answer in litres.

..... litres of yellow and litres of red

(2)

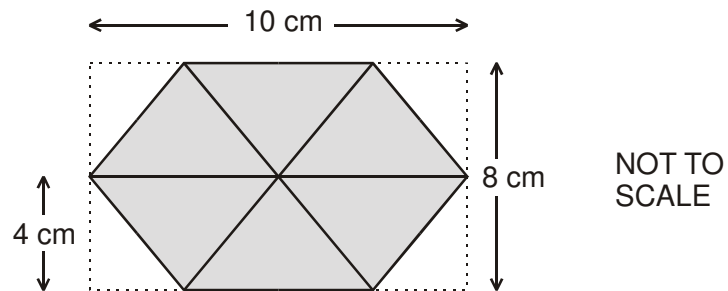
37)

A box for coffee is in the shape of a hexagonal prism.



One end of the box is shown below.

Each of the 6 triangles in the hexagon has the same dimensions.



Calculate the total **area** of the hexagon.

Show your working.



..... cm^2

(2)

38) , ♣, ∇, ⊕ stand for numbers and keep their value in each of the statements below.

$$+ \clubsuit = \oplus$$

$$\oplus - 2 = 8$$

$$\clubsuit + \oplus = 11$$

$$\nabla + = 12$$

$$= \dots\dots\dots$$

$$\nabla = \dots\dots\dots$$

$$\oplus = \dots\dots\dots$$

$$\clubsuit = \dots\dots\dots$$

(8)

END OF TEST