

SURNAME:

FIRST NAME:

PRESENT SCHOOL:

STOWE SCHOOL



13+ ENTRY PAPER

2011

(2012 ENTRY)

MATHEMATICS

Time Allowed: 1 hour

NO CALCULATORS

Attempt all questions

1. When $x = 8$, work out the values of the expressions below.

a) $2x + 13$

.....
[2]

b) $5 - 4x$

.....
[2]

2. Solve the following equations.

a) $2p + 11 = 17$

$p =$
[2]

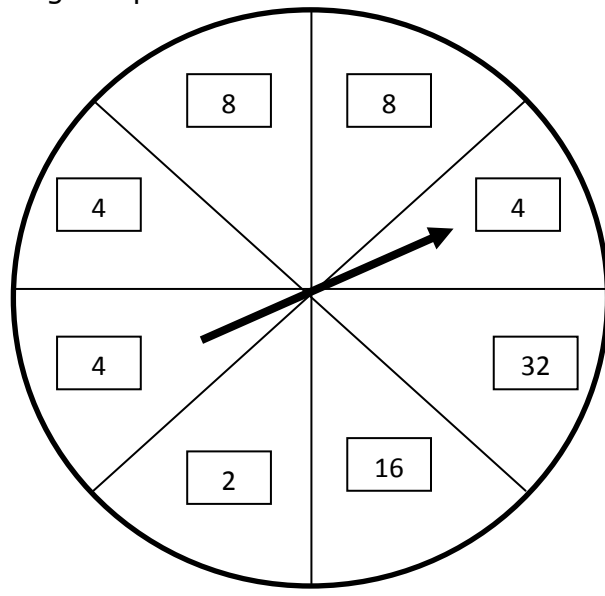
b) $9q + 3 = 5q + 13$

$q =$
[2]

c) $\frac{r}{4} + 1 = 6$

$r =$
[2]

3. A spinner has eight equal sections.



a) What is the probability of scoring 4 on the spinner?

.....
[1]

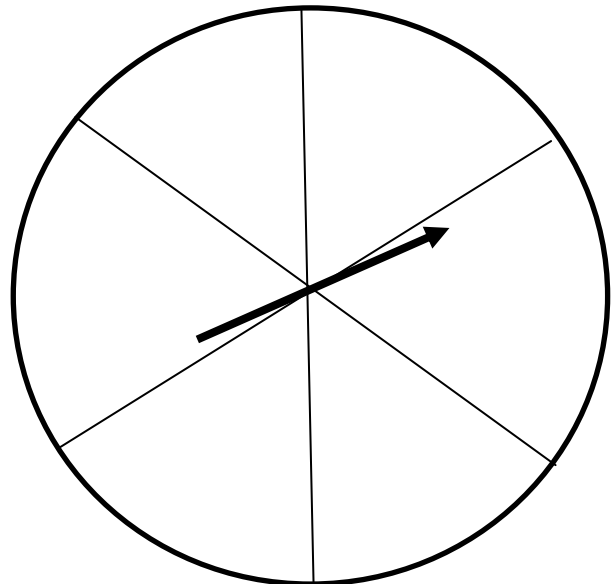
b) What is the probability of scoring an even number on the spinner?

.....
[1]

In the diagram below a different spinner has six equal sections and six numbers.

On this spinner, the probability of scoring an even number is $\frac{2}{3}$
The probability of scoring 4 is $\frac{1}{3}$.

c) Write the possible numbers on the spinner?



[2]

4. Look at this table.

Name	Age (in years)
Ann	a
Ben	b
Cindy	c

Write in words the meaning of each equation below.

The first one is done for you.

$b = 30$	Ben is 30 years old
$a + b = 69$	
$b = 2c$	
$\frac{a+b+c}{3} = 28$	

5. Hakan asked 30 pupils which subject they liked best.

<i>Subject</i>	<i>Number of boys</i>	<i>Number of Girls</i>
<i>Maths</i>	4	7
<i>English</i>	2	4
<i>Science</i>	3	3
<i>History</i>	0	1
<i>French</i>	1	5
Total	10	20

a) Which subject did 20% of boys choose?

.....
[1]

b) What percentage of girls chose Maths?

.....
[2]

Hakan said:

“In my survey, Science was equally popular with boys and girls”

c) Explain why Hakan was wrong.

.....
.....
.....
.....
[2]

d) Which subject was equally popular with boys and girls?

.....
[1]

6. Using negative numbers only, fill in the missing numbers in the boxes

$$\square - \square = 5$$

$$\square - \square = -5$$

[2]

7. a) Multiply together the numbers 84 and 367.
Show **all** your working to earn full marks.

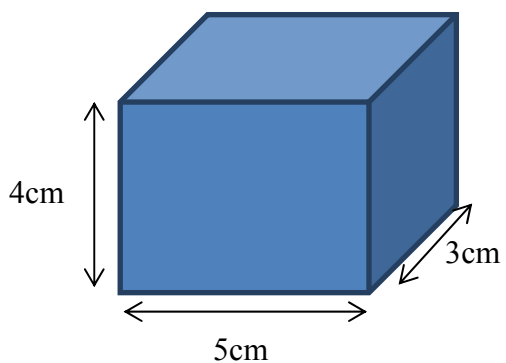
.....
[3]

b) Divide 4452 by 28.
Show **all** your working to earn full marks.

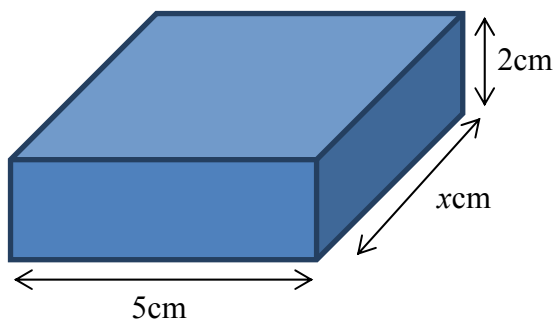
.....
[3]

8. The drawing shows 2 cuboids that have the same volume.

Cuboid A



Cuboid B



a) What is the volume of cuboid A?
Remember to state your units.

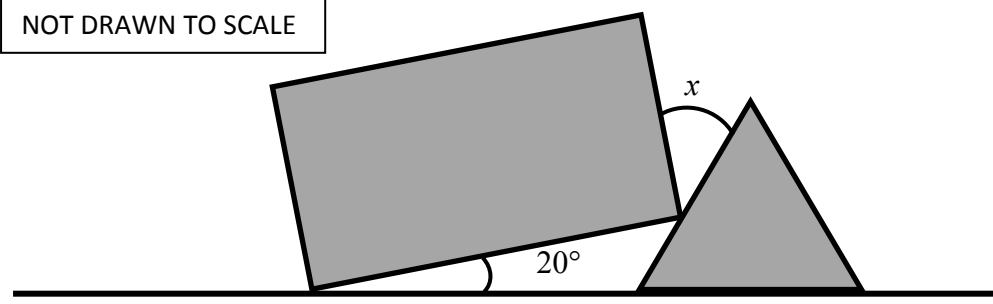
.....
[2]

b) Work out the length marked x .

.....
[2]

9. The diagram shows a rectangle that just touches an equilateral triangle.

NOT DRAWN TO SCALE

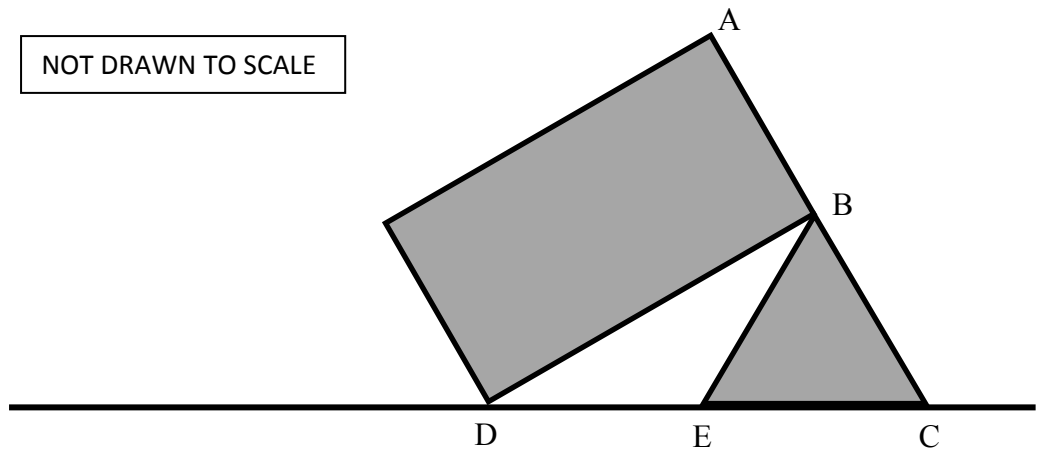


a) Find the size of the angle marked x .
Show your working.

.....
[2]

Now the rectangle just touches the equilateral triangle so that ABC is a straight line.

NOT DRAWN TO SCALE



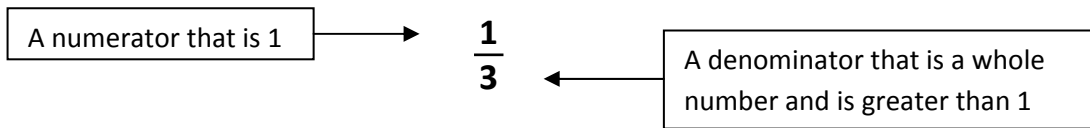
b) Explain why triangle BDE is an isosceles triangle.

.....
.....
.....
.....

[2]

10. The fractions $\frac{1}{2}$ and $\frac{1}{8}$ are examples of **unit** fractions.

All **unit** fractions must have



Any fraction can be written using unit fractions

eg $\frac{3}{4}$ can be written as $\frac{1}{2} + \frac{1}{4}$

a) What fraction is the same as the sum $\frac{1}{2} + \frac{1}{5}$?

.....
[2]

$\frac{9}{20}$ can be written as the sum of two unit fractions.

One of them is $\frac{1}{4}$

b) What is the other unit fraction?

.....
[2]

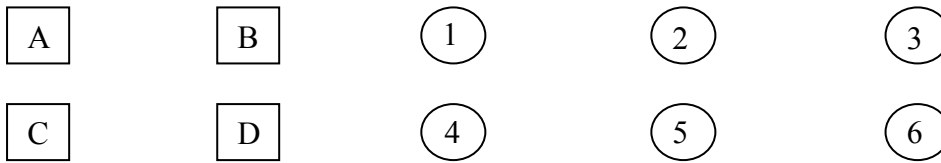
11. The subject of the equation below is p .

$$p = 2e + f$$

Rearrange the equation to make e the subject.

.....
[2]

12. A door has a security lock.
 To open it, you must press the correct buttons.
 The code for the door is one letter followed by a single number.
 For example: B6



- a) How many different codes are there altogether?

.....
[2]

I know that the correct code begins with a D.
 I press D and then guess a single number.

- b) What is the probability that I open the door?

.....
[2]

13. Screenwash is used to clean car windows.
 To use Screenwash it has to be mixed with water.

Winter Mixture	Summer Mixture
Mix 1 part Screenwash with 4 parts water	Mix 1 part Screenwash with 9 parts water

- a) In Winter, how much water should be mixed with 150ml of
 Screenwash?

.....
[2]

b) In Summer how much Screenwash should be mixed with 450ml of water?

.....
[2]

c) Is this statement correct?

25% of the winter mixture is Screenwash

Explain your answer

.....
.....
.....
.....
[2]

Total Marks [55]

END OF TEST