Mock Grade 5

Maths Booklet 6

Paper 1H
Non-Calculator

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Four friends each throw a biased coin a number of times.
The table shows the number of heads and the number of tails each friend got.

	Ben	**Helen**	**Paul**	**Sharif**
heads	18	25	57	20
tails	24	12	13	11

The coin is to be thrown one more time.

(a) Which of the four friends' results will give the best estimate for the probability that the coin will land heads?
Justify your answer.

.....

.....

.....

(1)

Paul says,

"With this coin you are twice as likely to get heads as to get tails."

(b) Is Paul correct?
Justify your answer.

.....

.....

.....

(2)

The coin is to be thrown twice.

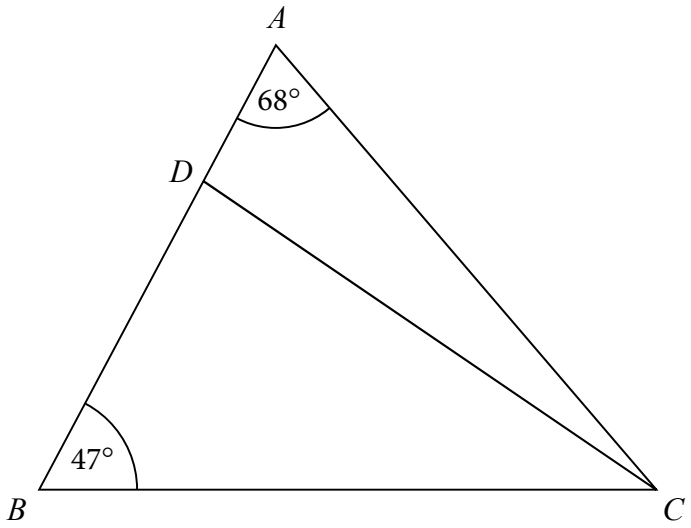
(c) Use all the results in the table to work out an estimate for the probability that the coin will land heads both times.

.....

(2)

(Total for Question 1 is 5 marks)

2 The diagram shows triangle *ABC*.



ADB is a straight line.

the size of angle *DCB* : the size of angle *ACD* = 3 : 2

Work out the size of angle *BDC*.

.....°

(Total for Question 2 is 4 marks)

3 3 red bricks have a mean weight of 8 kg.
5 blue bricks have a mean weight of 6 kg.
2 green bricks have a mean weight of 4 kg.

Donna says,

"The mean weight of the 10 bricks is less than 6 kg."

Is Donna correct?
You must show how you get your answer.

(Total for Question 3 is 3 marks)

4 (a) Simplify $(p^3)^4$

.....

(1)

(b) Simplify $18x^9y^5 \div 12x^6y$

.....

(2)

(Total for Question 4 is 3 marks)

5 The accurate scale drawing shows the positions of port P and a lighthouse L.

Scale: 1 cm represents 5 km.

Aleena sails her boat from port P on a bearing of 080°

She sails for $1\frac{1}{2}$ hours at an average speed of 10 km/h to a port Q.

Find

(i) the distance, in km, of port Q from lighthouse L,

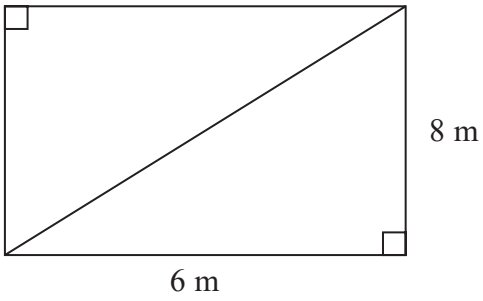
(ii) the bearing of port Q from lighthouse L.

distance QL = ... km

bearing of Q from L = ... °

(Total for Question 5 is 5 marks)

6 This rectangular frame is made from 5 straight pieces of metal.



The weight of the metal is 2.5 kg per metre. Work out the total weight of the metal in the frame.

..... kg

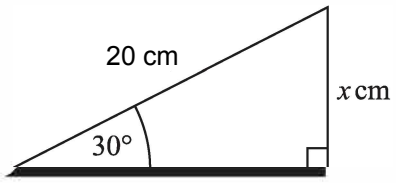
(Total for Question 6 is 5 marks)

7 (a) Write down the exact value of tan 30°

.....

(1)

(b)



Given that cos 60° = 0.5,
work out the value of x.

.....

(2)

(Total for Question 7 is 3 marks)

8 The equation of the line L_1 is $y = 4x - 2$
The equation of the line L_2 is $12y + 3x + 5 = 0$

Show that these two lines are perpendicular.

(Total for Question 8 is 2 marks)

9 There are 20 boys and 30 girls in a class.
The class has a test.

The mean mark for all the class is 80
The mean mark for the boys is 74

Work out the mean mark for the girls.

.....

(Total for Question 9 is 3 marks)

10 (a) Write 5.88×10^{-4} as an ordinary number.

.....

(1)

(b) Work out the value of $(3.56 \times 10^{4}) \div (4 \times 10^{-5})$
Give your answer in standard form.

.....

(2)

(Total for Question 10 is 3 marks)