BLOCK 4 TEST

TIME: 45 minutes
The total mark for this paper is 50

NAME	TOTAL MARKS	PERCENTAGE

Calculators may be used.
You require a ruler and protractor.

TUTORS & FUTURES

1. Alfie, Bertie and Charlie share £66.

The amount Alfie and Bertie get is in the ratio 9:5.

The amount Bertie and Charlie get is in the ratio 2:1.

How much does Alfie get?

.....

(Total 3 marks)

2. The exchange rate in London is £1 = €1.14
The exchange rate in Paris is €1 = £0.86

Elaine wants to change some pounds into euros.

In which of these cities would Elaine get the most euros?

.....

(Total 4 marks)

3. The first five terms of an arithmetic sequence are

2 9 16 23 30

Find, in terms of n, an expression for the *nth* term of this sequence.

……..

(Total 2 marks)

4. The *nth* term of a sequence is $2n^2$

(i) Find the 4^{th} term of the sequence.

……..

(ii) Is the number 400 a term of the sequence?
Give reasons for your answer

……

……

(Total 3 marks)

5. It takes 5 machines 6 hours to produce 1000 DVDs.

Work out how long it would take 4 machines to produce 1000 DVDs.

……

(Total 2 marks)

6. Railtickets and Cheaptrains are two websites selling train tickets.
Each website adds a credit card charge and a booking fee to the ticket price.

Railtickets	**Cheaptrains**
Credit card charge: 2.25% of ticket price	Credit card charge: 1.5% of ticket price
Booking fee: 80 pence	Booking fee: £1.90

Nadia wants to buy a train ticket.
The ticket price is £60 on each website.
Nadia will pay by credit card.

Which firm should Nadia choose for the cheapest price?

.....

(Total 4 marks)

7. (a) Simplify $m^6 \times m^7$

.....
(Total 1 mark)

(b) Simplify $15y^6 \div 3y^2$

.....
(Total 2 marks)

8.

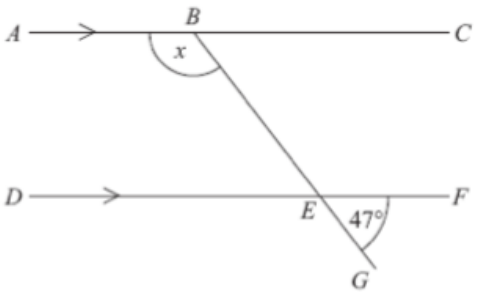


Diagram **NOT** accurately drawn

ABC and DEF are parallel lines.
BEG is a straight line.

Work out the size of the angle marked *x*.

Give reasons for your answer.

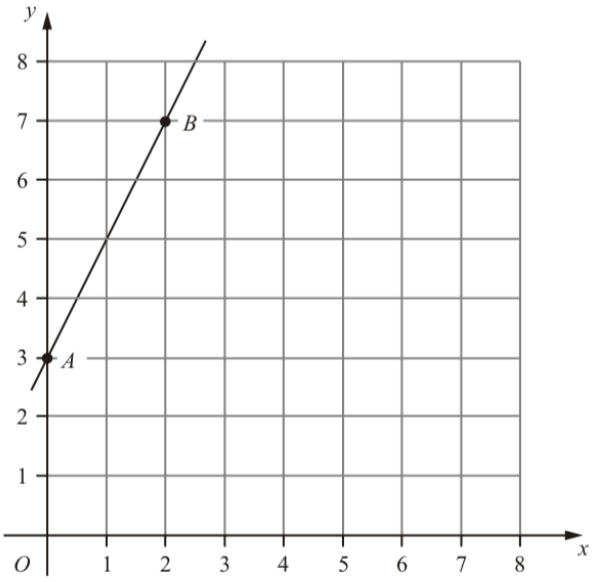
.....
(Total 3 marks)

9. Find the gradient of the line that passes through (3, -1) and (-2, 9).

.....

(Total 2 marks)

10.



Find the equation of the line that passes through A and B.

.....

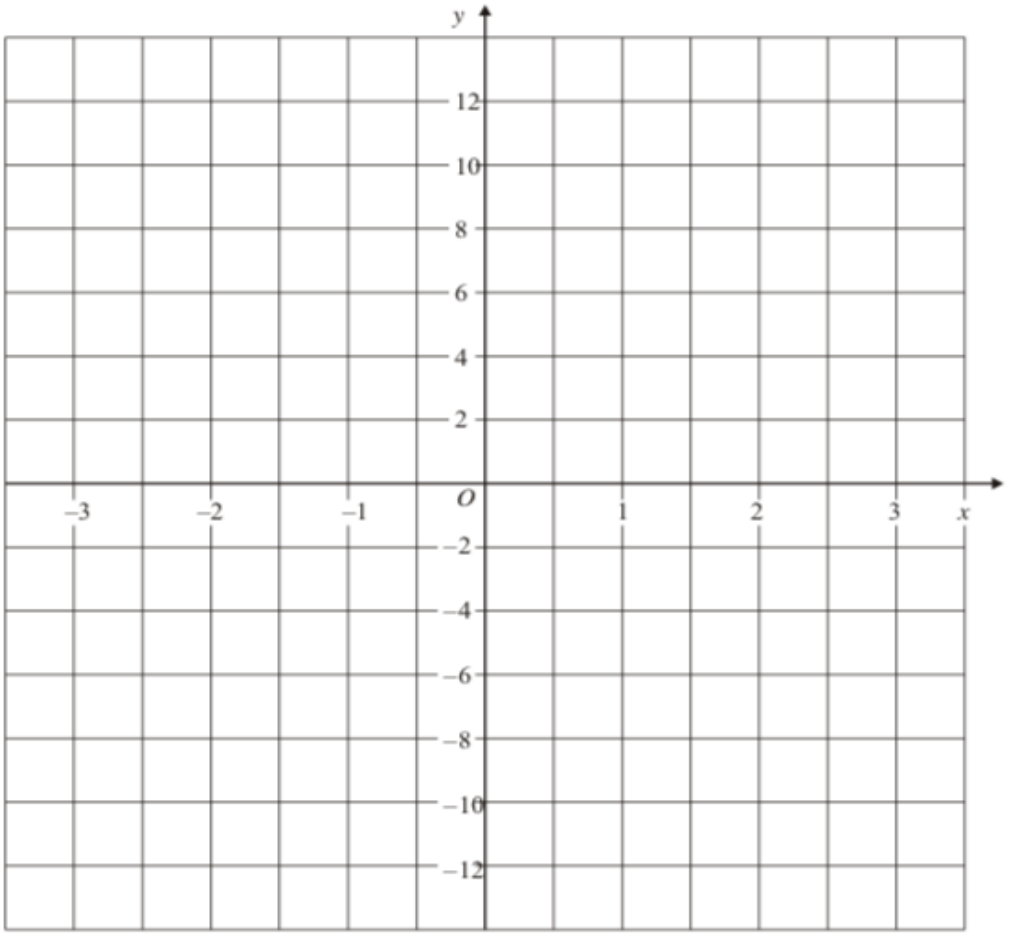
(Total 3 marks)

11. (a) Complete the table of values for $y = x^2 + x$

x	–3	–2	–1	0	1	2	3
y	6	2		0		6	

(Total 2 marks)

(b) On the grid, draw the graph of $y = x^2 + x$



(Total 2 marks)

12. Pete rolls an ordinary dice once.
Write down the probability that he gets

(i) a 6

.....

(Total 1 mark)

(ii) an odd number

.....

(Total 1 mark)

(iii) a number less than 3

.....

(Total 1 mark)

(iv) an 8

.....

(Total 1 mark)

13.

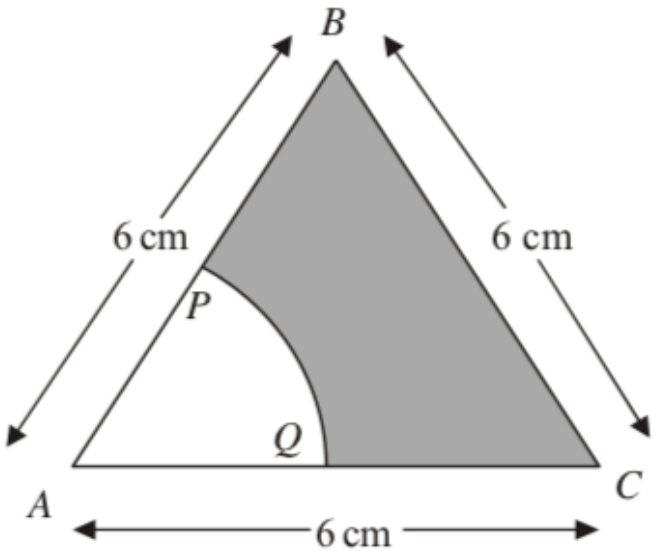


Diagram **NOT** accurately drawn

The diagram shows an equilateral triangle with sides of length 6cm and perpendicular height of 5.2cm.

P is the midpoint of AB.
Q is the midpoint of AC.
APQ is a sector of a circle, centre A.

Calculate the area of the shaded region.
Give your answer correct to 3 significant figures.

.....

(Total 4 marks)

14. 20 students scored goals for the school hockey team last month.
This table gives information about the number of goals they scored.

Goals Scored	Number of Students
1	9
2	3
3	5
4	5

(a) Write down the modal number of goals scored.

.....

(Total 1 mark)

(b) Work out the range of the number of goals scored.

.....

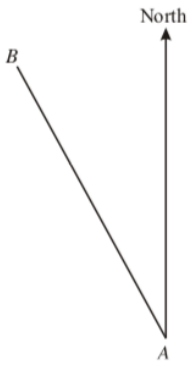
(Total 1 mark)

(c) Work out the mean number of goals scored.

.....

(Total 3 marks)

15.



(a) Measure and write down the bearing of B from A.

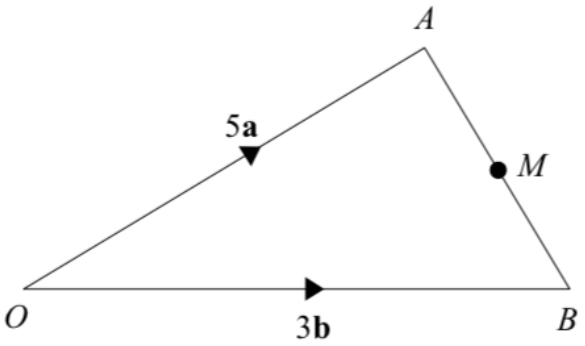
.....

(Total 1 mark)

(b) On the diagram, draw a line on a bearing of 107° from A.

(Total 1 mark)

16.



$\overrightarrow{OA} = 5a$

$\overrightarrow{OB} = 3b$

M is the midpoint of AB

(a) Find, in terms of a and b, the vector AB

.....

(Total 1 mark)

(b) Find, in terms of a and b, the vector BA

.....

(Total 1 mark)