Name _____

Teacher _____

2nd Year Mathematics

End of year assessment

Paper 1

Non-calculator

Time allowed: 1 hour

Remember to show all your working out clearly

Mastery

1. Solve these equations.

(a) $6r + 2 = 7$

.....

.....

Answer r = ...

(2)

(b) $3s + 4 = 2s - 7$

.....

.....

.....

Answer s = ...

(2)

(c) $4 (2y – 3) = 16$

.....

.....

.....

.....

.....

Answer y = ...

(3)

(d) $\frac{m+1}{4} = 3$

.....

.....

.....

.....

.....

Answer m = ...

(2)

(Total 9 marks)

2. (a) Express 100 as the product of prime factors.

Write your answer in index form.

Answer ……..

(3)

(b) You are given that $140 = 2^2 \times 5 \times 7$

Find the highest common factor (HCF) of 140 and 100.

…….

…….

…….

Answer ……..

(2)
(Total 5 marks)

3. (a) Work out the value of $3c - 4d$ when $c = 5$ and $d = \frac{1}{2}$

.....

.....

.....

Answer .....

(2)

(b) Factorise fully $6x + 3x^2$

.....

.....

.....

.....

Answer .....

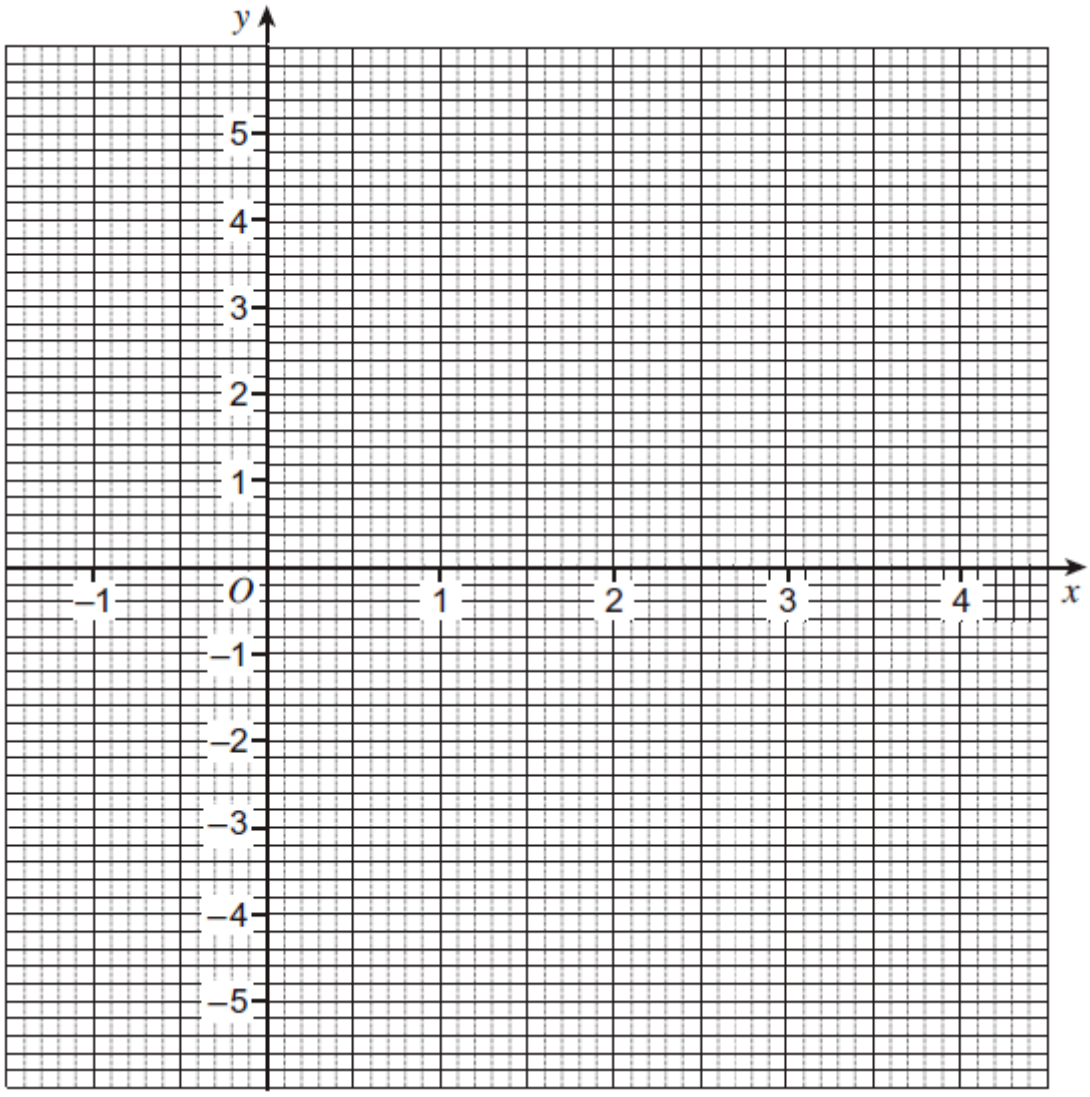
(2)
(Total 4 marks)

4. (a) Complete the table of values for $y = 2x - 3$

x	−1	0	1	2	3	4
y		−3		1		5

(2)

(b) On the grid draw the graph of $y = 2x - 3$ for values of x from −1 to 4.



(2)
(Total 4 marks)

5. Work out the following calculations:

a) -2×6 .....

b) $-3 - 11$ .....

c) $-42 \div -7$ .....

(Total 3 marks)

6. Calculate the following:

a) $\frac{3}{7} - \frac{2}{5}$

.....

.....

.....(2)

b) $1\frac{2}{3} \div 3\frac{1}{2}$

.....

.....

.....(3)

(5 marks)

7. Four melons cost £4.28

How much will seven melons cost?

.....

.....

.....

.....

Answer £ .....

(Total 3 marks)

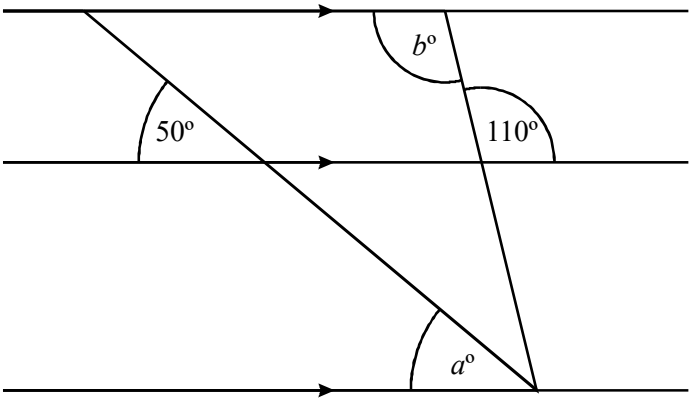
Problem Solving

8. Tom and Lucy share some sweets in the ratio 5 : 3. Tom gets 10 more sweets than Lucy. How many sweets does Lucy get?

Answer:

(3 marks)

9. Work out the values of *a* and *b*, giving reasons for your answers.



Not drawn accurately

a = ...

reason(s):……

……

…….....

b = ...

reason(s):……

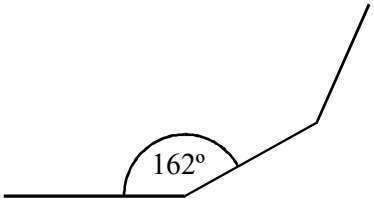
……

……..

(Total 4 marks)

10. The diagram shows part of a regular polygon.

Each interior angle is 162°.



Not drawn accurately

Calculate the number of sides of the polygon.

.....

.....

……...

Answer…… **(Total 3 marks)**

11. Three integers multiplied together give an answer of -12. The sum of two of the numbers is zero. What could the three numbers be?

Answer ....

(2 marks)

12. Two normal,fair six sided dice are rolled.

a) Fill in the probabilities on the tree diagram.

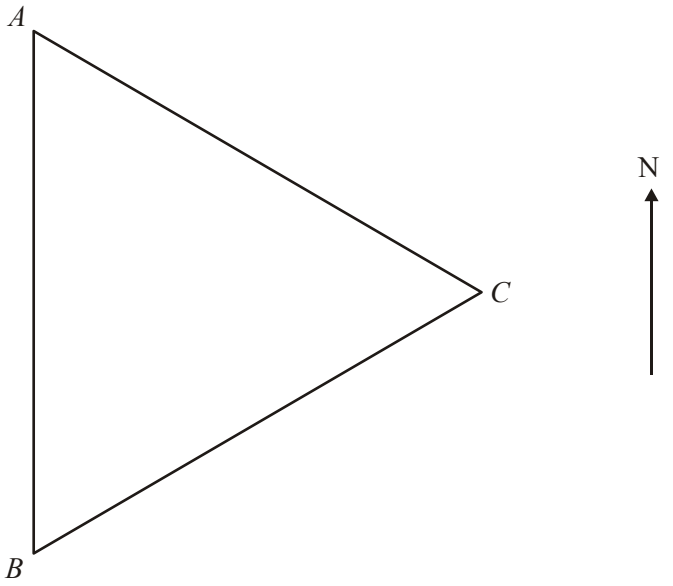
(2)

b) Find the probability that the score on at least one dice is 5.

Answer .....

(3)
(Total 5 marks)

13. (a) *A*, *B* and *C* are three towns which form an equilateral triangle as shown.



Use the given bearings to complete the sentences.

060° 120° 180° 240° 300°

(i) *C* is on a bearing of .....from *A*. (1)

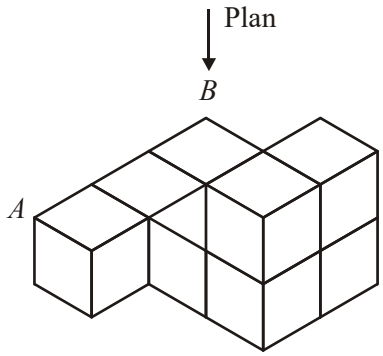
(ii) *B* is on a bearing of .....from *C*. (1)

(b) *D*, *E* and *F* are three towns.
E and *F* are shown on the diagram.
D is on a bearing of 070° from *E*.
D is also on a bearing of 320° from *F.*

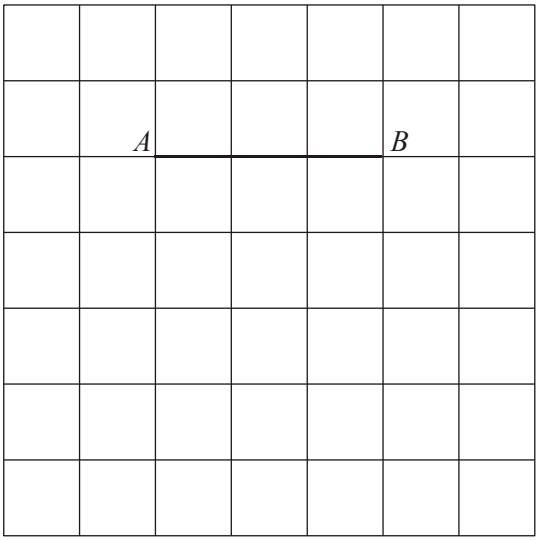
Complete the diagram to show accurately the position of *D.*

(2)
(Total 4 marks)

14. a) The diagram shows a solid shape made from 8 cubes.

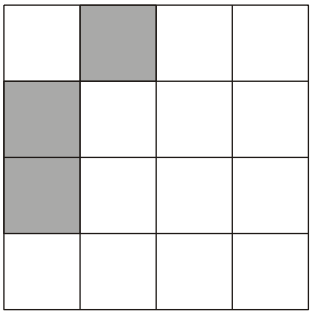


Complete the plan view of the shape on the grid below.



(2)

(b) Three small squares are shaded in the diagram.



Shade in three more small squares to make a pattern with rotational symmetry of order 2.

(2)
(Total 4 marks)