

B

SECONDARY SCHOOL ANNUAL EXAMINATIONS 2008
DIRECTORATE FOR QUALITY AND STANDARDS IN EDUCATION
Educational Assessment Unit

FORM 4 MATHEMATICS-Scheme B (Non-Calculator Paper) TIME: 20 minutes

Name _____

Class _____

Mark

Instructions to Candidates

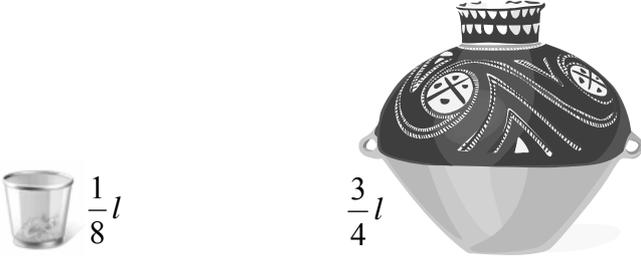
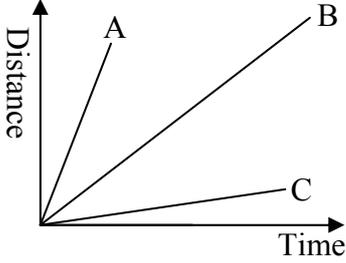
- Answer all questions. There are 20 questions to answer.
 - Each question carries 1 mark.
 - Calculators, protractors and other mathematical instruments except rulers are not allowed.
 - You are not required to show your working. However space for working is provided if you need it.
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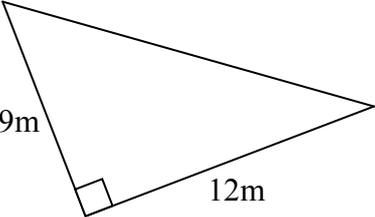
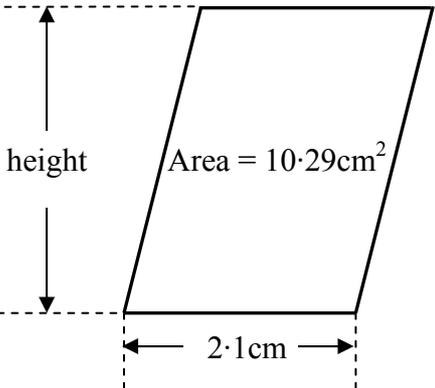
No.	QUESTION	Space for Working if Required								
1	Which of the following is the reciprocal of $1\frac{2}{5}$? (a) $\frac{7}{5}$ (b) $5\frac{1}{2}$ (c) $\frac{5}{7}$ (d) $2\frac{1}{5}$ Ans _____									
2	Write the recurring decimal $0.\dot{6}$ as a fraction. Ans _____									
3	Write the number 0.00384 in standard form. Ans _____									
4	A train travels 22km in 10 minutes. Calculate the average speed of the train in km/h. Ans _____									
5	A domestic reverse osmosis system uses three stages to filter tap water. Each stage has a cartridge which should be replaced periodically as shown: <table border="1" data-bbox="440 1196 938 1518" style="margin: 10px auto;"> <thead> <tr> <th><i>Stage</i></th> <th><i>Cartridge to be replaced every:</i></th> </tr> </thead> <tbody> <tr> <td>First</td> <td>2 years</td> </tr> <tr> <td>Second</td> <td>3 years</td> </tr> <tr> <td>Third</td> <td>4 years</td> </tr> </tbody> </table> The system starts with new cartridges. After how many years should the three cartridges be replaced all at the same time? Ans _____	<i>Stage</i>	<i>Cartridge to be replaced every:</i>	First	2 years	Second	3 years	Third	4 years	
<i>Stage</i>	<i>Cartridge to be replaced every:</i>									
First	2 years									
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Third	4 years									

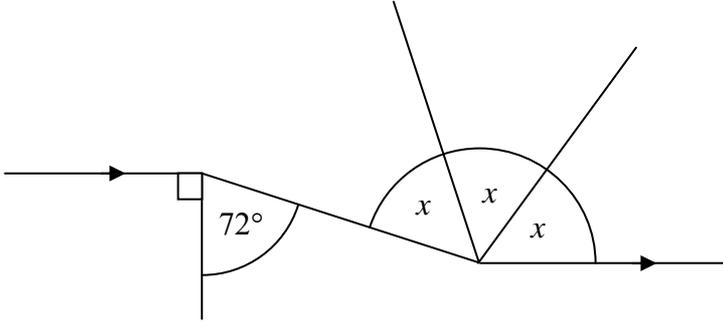
Name _____

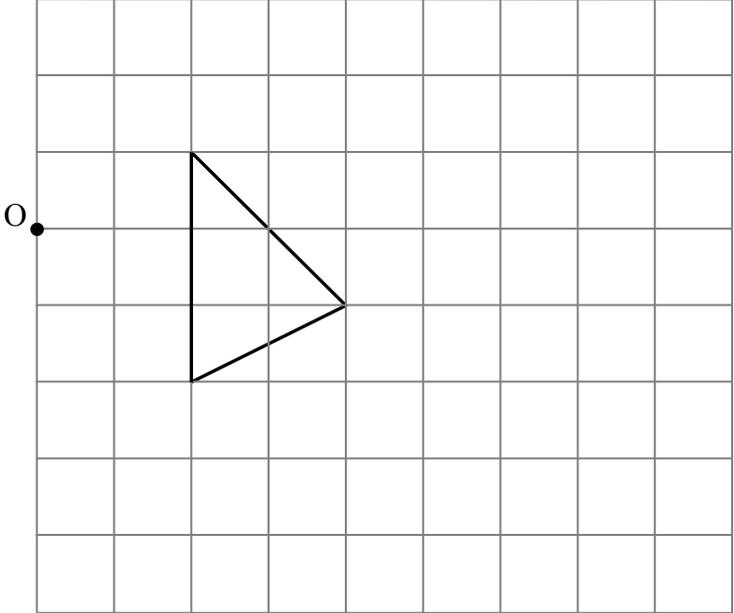
Class _____

B

No.	QUESTION	Space for Working if Required
6	<p>This container has a capacity of $\frac{3}{4}$ litre. How many $\frac{1}{8}$ litre glasses can be filled from this container?</p> <div style="text-align: center; margin-top: 20px;">  <p style="display: flex; justify-content: space-around; align-items: center;"> $\frac{1}{8} l$ $\frac{3}{4} l$ </p> </div> <p style="text-align: right; margin-top: 10px;">Ans _____</p>	
7	<div style="display: flex; align-items: center;"> <div style="margin-right: 20px;">  </div> <div> <p>The graphs show the distance and time for three journeys A, B and C. Which is the slowest journey?</p> <p style="text-align: right; margin-top: 10px;">Ans _____</p> </div> </div>	
8	<p>11 trees are planted at equal intervals along a street 90m long. If there is a tree at each end of the street, calculate the distance between the 3rd and the 8th tree.</p> <p style="text-align: right; margin-top: 20px;">Ans _____</p>	

No.	QUESTION	Space for Working if Required
9	 <p>Write down the length of the hypotenuse.</p> <p>Ans _____</p>	
10	 <p>Which of the following is the height of the parallelogram?</p> <p>(a) 4.1cm (b) 5.9cm (c) 4.9cm (d) 2.1cm</p> <p>Ans _____</p>	
11	<p>Write down the missing terms in the following sequence:</p> <p>6, 7, _____, 15, 22, 31, 42, _____.</p>	
12	<p>Simplify the expression: $6x + 3y + 2x - y$</p> <p>Ans _____</p>	
13	<p>Factorise the expression: $4ab - 2ac$</p> <p>Ans _____</p>	

No.	QUESTION	Space for Working if Required
14	 <p>Calculate the value of x from the diagram.</p> <p style="text-align: right;">Ans _____</p>	
15	<p>This year Robert wrote 4 compositions for which his teacher gave him 8, 7, 9 and 7 marks. Work out Robert's median mark.</p> <p style="text-align: right;">Ans _____</p>	
16	<p>Choose the correct answer:</p> <p>$\sqrt{6400} =$ (a) 8 (b) 80 (c) 800 (d) 3200</p> <p style="text-align: right;">Ans _____</p>	
17	<p>Write the name of the shape traced by the following Logo commands:</p> <p style="text-align: center;">Pd repeat 5 [fd 20 rt 72]</p> <p style="text-align: right;">Ans _____</p>	

No.	QUESTION	Space for Working if Required															
18	<table border="1" data-bbox="258 293 1059 474"> <thead> <tr> <th></th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> </tr> </thead> <tbody> <tr> <th>1</th> <td>4</td> <td>2</td> <td>10</td> <td>$=(A1^A B1)^*C1$</td> </tr> <tr> <th>2</th> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p data-bbox="225 510 951 544">This is a spreadsheet. What value will be shown in D1?</p> <p data-bbox="868 584 1129 618">Ans _____</p>		A	B	C	D	1	4	2	10	$=(A1^A B1)^*C1$	2					
	A	B	C	D													
1	4	2	10	$=(A1^A B1)^*C1$													
2																	
19	<p data-bbox="225 680 932 748">Write $(7^3 \times 7)^2$ as a single number in index form.</p> <p data-bbox="874 819 1136 853">Ans _____</p>																
20	<p data-bbox="236 999 687 1104">Enlarge the triangle using O as the centre of enlargement and a scale factor 2.</p> 																

SECONDARY SCHOOL ANNUAL EXAMINATIONS 2008
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FORM 4 MATHEMATICS – Scheme B (Main Paper) Time: 1 hour 40 min

Question	1	2	3	4	5	6	7	8	9	10	11	Total Main	Non Calculator	Global Mark
Mark														

DO NOT WRITE ABOVE THIS LINE

Name: _____

Class: _____

Calculators and mathematical instruments are allowed but all necessary work must be shown

ANSWER ALL QUESTIONS

1. 5 men take 90 minutes to dig a trench.
 (a) How long will 3 men working at the same rate take to dig the trench?

Ans _____

- (b) Each of these three men is paid €4.50 an hour. How much will the three men earn altogether?

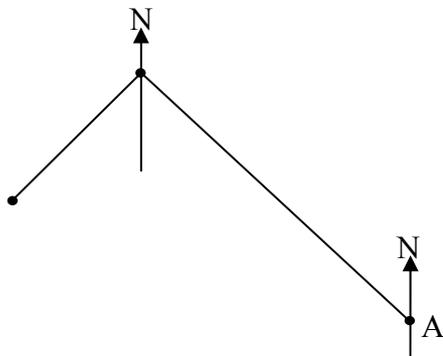
Ans _____

(4 marks)

2. (a) A ship sailed 28km NW from A to B and then 19km SW from B to C.

(i) Complete and label the triangle ABC.

(ii) What is the size of $\angle ABC$?

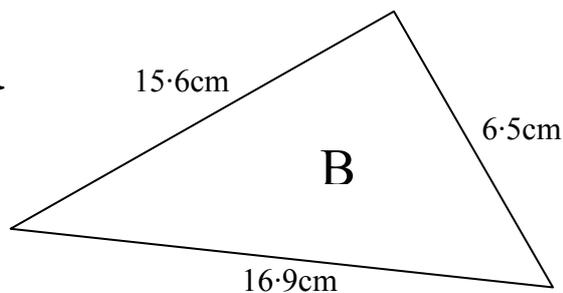
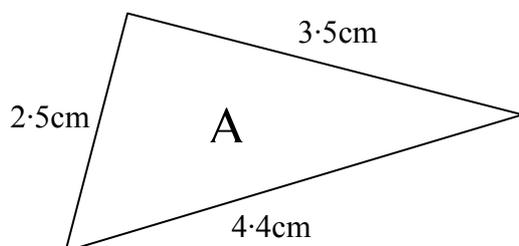


Ans _____

(iii) Calculate the straight-line distance of the ship from its starting position. Give your answer correct to one decimal place.

Ans _____

(b) Use Pythagoras' theorem to find which of these two triangles is a right-angled triangle. Show your working.



Ans: The right-angled triangle is _____.

(11 marks)

Name _____

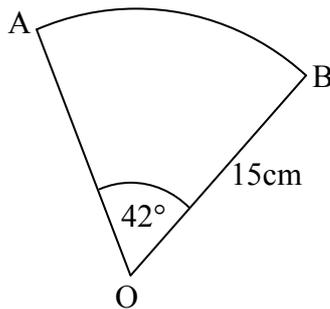
Class _____

B

3. (a) Given that $2^x = \frac{1}{8}$ then $x =$ _____
- (b) Given that $6^0 = y$ then $y =$ _____
- (c) Given that $p^{-3} \times p^7 = p^z$ then $z =$ _____
- (d) Given that $\frac{k^6 \times k^2}{k^3} = k^w$ then $w =$ _____

(7 marks)

-
4. (a) OAB is a sector of a circle of radius 15cm. Calculate the length of the arc AB correct to the nearest cm.



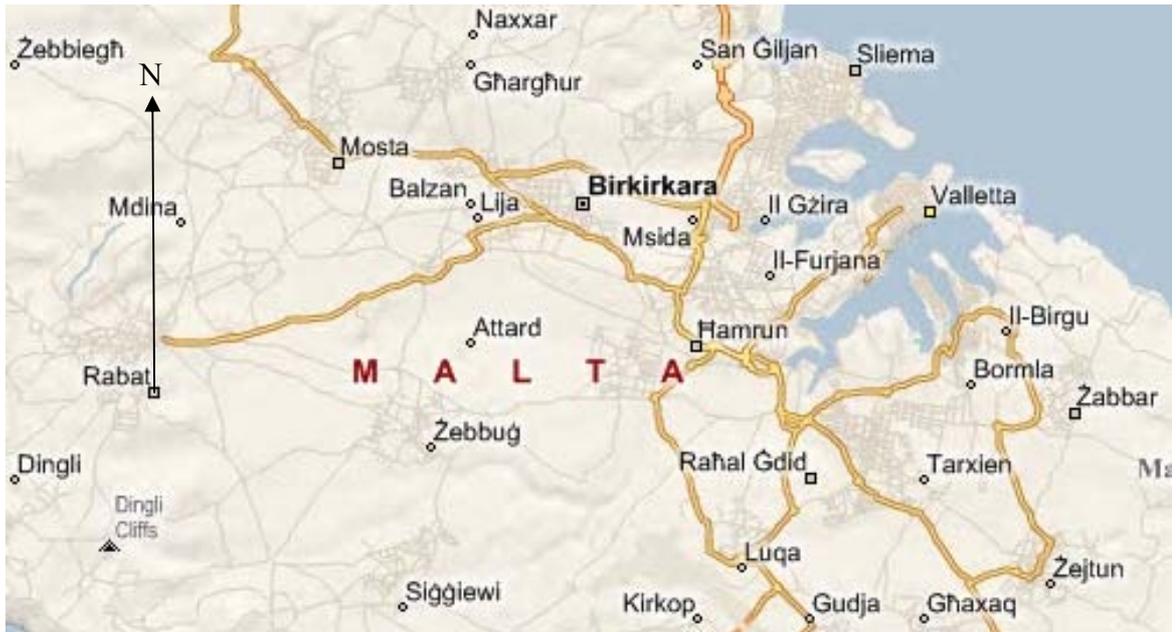
Ans _____

- (b) Jimmy has enough paint to cover an area of 20m^2 . Calculate correct to 1 decimal place, the radius of the biggest circle that he can paint.

Ans _____

(8 marks)

5.



Scale: 1cm = 1km

A helicopter flies in a straight line from Rabat to Sliema.

(a) Draw a line which shows the journey.

(b) Measure the map distance from Rabat to Sliema. _____ cm

(c) What is the distance travelled in km? _____ km

(d) Mark, measure and write down the three figure bearing from Rabat to Sliema. _____ °

(6 marks)

6. (a) The n^{th} term of a sequence is $3n^2 - 4$. Calculate the 5^{th} term.

(b) Simplify the expression: $\frac{3x}{2} - \frac{4x}{5}$

(c) Martin's age is 3 years more than twice Clive's age.

(i) Let Clive be x years old and write an expression in x for Martin's age.

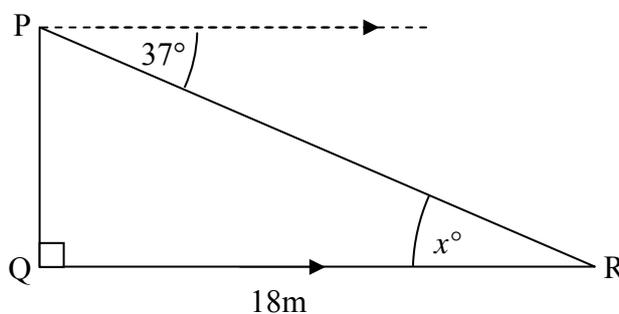
Ans _____

(ii) How old is Martin if Clive is $2\frac{1}{2}$ years old?

Ans _____

(7 marks)

7.



The angle of depression of R from P is 37° .

(a) Angle $x =$ _____ Give a reason: _____.

(b) Calculate the length PR correct to three significant figures.

Ans _____

(6 marks)

8. (a) Complete the tables for the graphs of $y = 2x - 1$ and $y = x^2 + 2x - 5$.

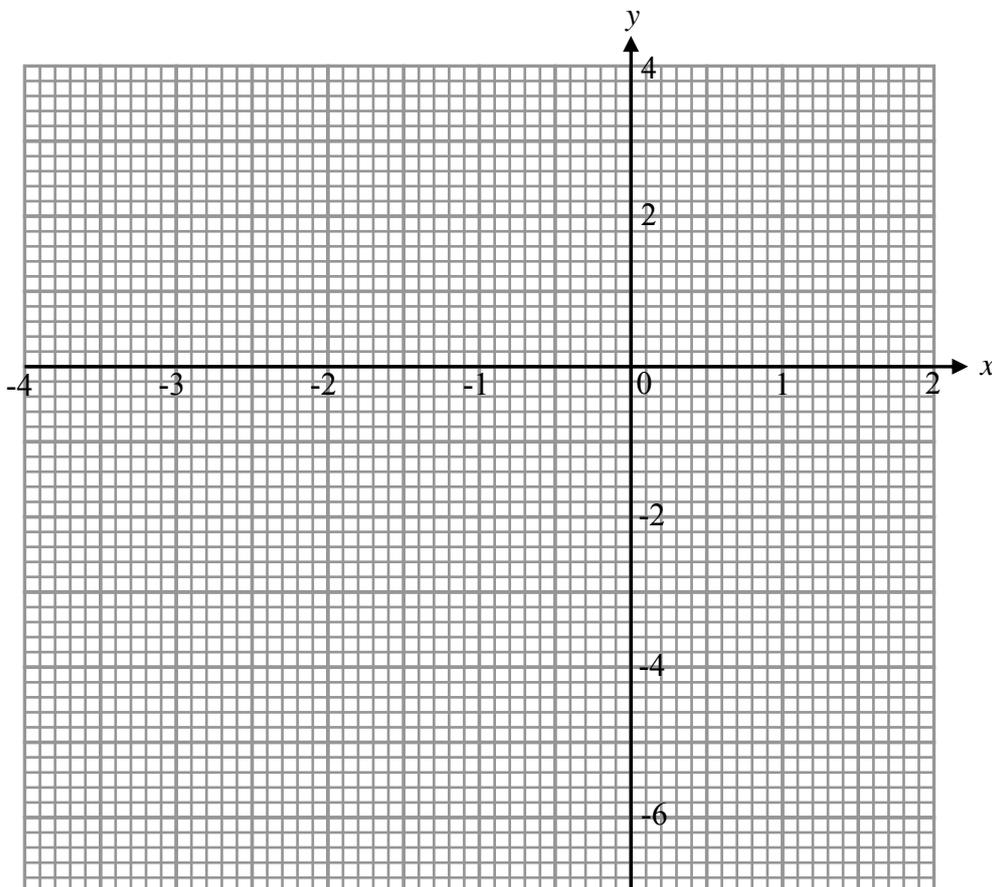
$$y = 2x - 1$$

x	-2	-1	1
y	-5		

$$y = x^2 + 2x - 5$$

x	-4	-3	-2	-1	0	1	2
x^2	16	9		1			4
$+2x$	-8		-4	-2	0	2	
-5	-5	-5	-5	-5	-5	-5	-5
y	3	-2			-5		

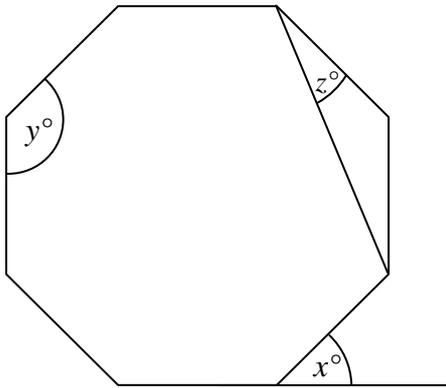
(b) Draw the two graphs on the grid below.



(c) The coordinates of the two points of intersection are: (,) and (,).

(13 marks)

9. The diagram shows a regular octagon. Calculate the angles marked x° , y° and z° .



Ans $x =$ _____

$y =$ _____

$z =$ _____

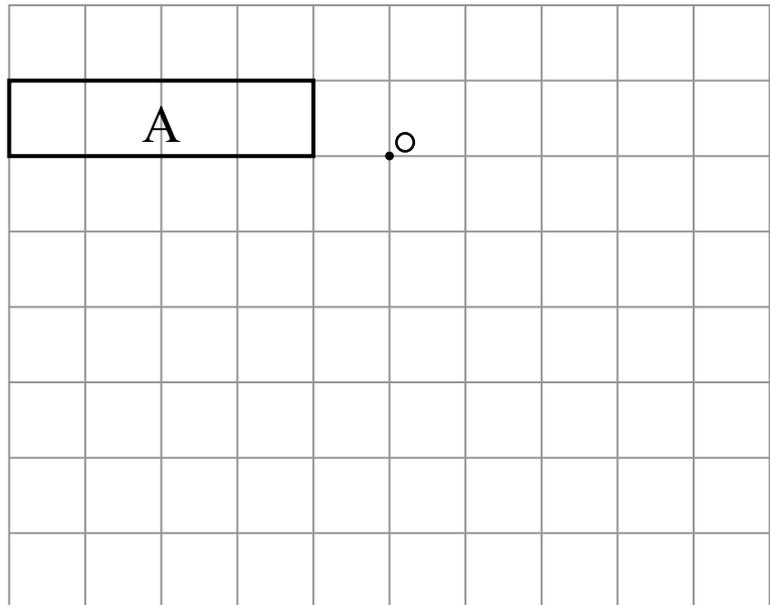
(6 marks)

10.

(a) Rotate shape A 90° anticlockwise about point O. Call it B.

(b) Translate A using the translation vector $\begin{bmatrix} 5 \\ -1 \end{bmatrix}$. Call it C.

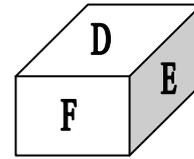
(c) Draw the mirror line that reflects B onto C.



(6 marks)

11. A cuboid has two opposite faces marked D, another two opposite faces marked E and the remaining two faces marked F. Bernard rolled the cuboid on the floor 500 times. He also recorded which face it landed on. The following are his results.

Face D	Face E	Face F
210	?	105



- (a) How many times did the cuboid land on a face marked E? _____
- (b) What is the probability that the cuboid lands on a face marked F? _____
- (c) If Bernard throws the cuboid another 150 times, how many times is it probably going to land on a face marked D?

(6 marks)

END OF PAPER