

JUNIOR LYCEUM ANNUAL EXAMINATIONS - 2004
Educational Assessment Unit - Education Division

FORM 1

MATHEMATICS (MENTAL)


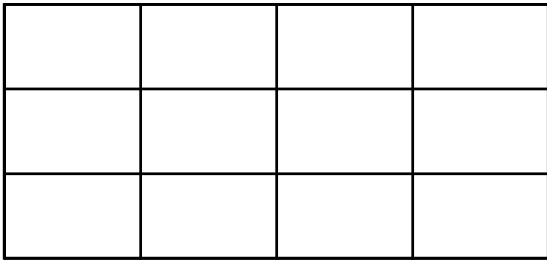
TIME: 10 min.

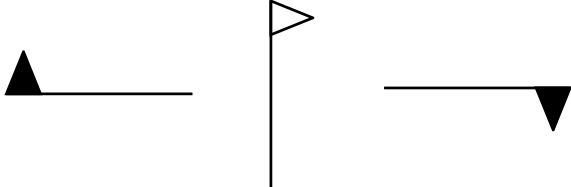
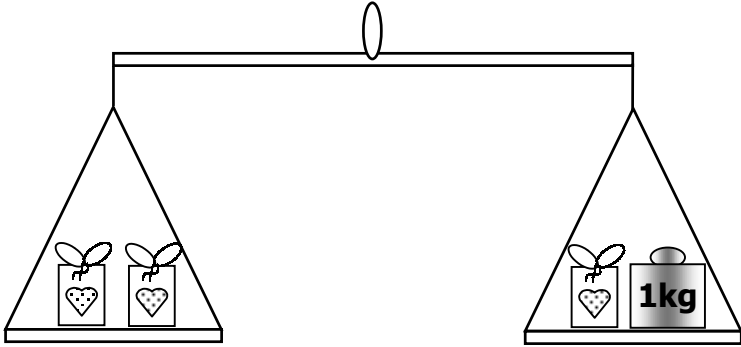

Name _____

Class _____

Mark

- **ANSWER ALL QUESTIONS.**
- **EACH QUESTION CARRIES 1 MARK.**
- **CALCULATORS, RULERS, PROTRACTORS AND OTHER MATHEMATICAL INSTRUMENTS ARE NOT ALLOWED.**
- **WRITE DOWN YOUR ANSWER ONLY IN THE SPACE PROVIDED.**
- **THIS PAPER CONTAINS 10 QUESTIONS.**

	QUESTION	SPACE FOR WORKING IF REQUIRED
1.	<p>The clock shows the time in the afternoon.</p>  <p>What is the time using the 24-hour clock?</p> <p style="text-align: right;">Ans: _____ :</p>	
2.	<p>A shop buys 400 batteries. 3% of them are faulty. How many batteries are faulty?</p> <p style="text-align: right;">Ans: _____ batteries</p>	
3.	<p>How many bars of chocolates costing 19 cents each can I buy with Lm1?</p> <p style="text-align: right;">Ans: _____ bars</p>	
4.	<p>Shade in $\frac{3}{4}$ of the diagram.</p> 	
5.	<p>Which is the longest distance?</p> <p>(A) 300 cm, (B) 0.03 km, (C) 3000 mm.</p> <p style="text-align: right;">Ans: _____</p>	

	QUESTION	SPACE FOR WORKING IF REQUIRED
6.	<p>Draw the next pattern:</p> 	
7.	<p>All the three packages have the same weight.</p>  <p>What is the weight of ONE package?</p> <p>Ans: _____</p>	
8.	<p>John wants to draw a rectangle of perimeter 10 turtle steps, using LOGO.</p> <p>Write down the missing number in the commands that he typed in:</p> <p>PD REPEAT 2[FD 3 RT 90 FD __ RT 90]</p> <p>Ans: _____</p>	
9.	<p>The letter </p> <p>(A) has line symmetry only, (B) has rotational symmetry only, (C) has both line symmetry and rotational symmetry.</p> <p>Ans: _____</p>	

	QUESTION	SPACE FOR WORKING IF REQUIRED
10.	Jessica is $5\frac{1}{2}$ years old. Jane is 6 years old. Janice is $6\frac{1}{2}$ years old. What is their average age? Ans: _____	



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FORM 1

MATHEMATICS (Main Paper)

TIME: 1 h 50 min

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total Main	Mental	Global Mark
Mark																		

DO NOT WRITE ABOVE THIS LINE

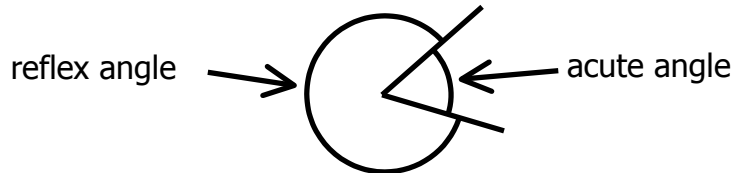
Name _____

Class _____

CALCULATORS ARE NOT ALLOWED

ANSWER ALL QUESTIONS.

1. A **whole turn** can be made up of an acute angle and a reflex angle.



$$\boxed{\text{whole turn}} = \boxed{\text{acute}} + \boxed{\text{reflex}}$$

Fill in the empty boxes with the correct type of angle:

(a) $\boxed{\text{whole turn}} = \boxed{\text{obtuse}} + \boxed{\phantom{\text{angle}}}$

(b) $\boxed{\text{whole turn}} = \boxed{\text{right angle}} + \boxed{\text{right angle}} + \boxed{\text{acute}} + \boxed{\phantom{\text{angle}}}$

(c) $\boxed{\text{whole turn}} = \boxed{\text{right angle}} + \boxed{\text{obtuse}} + \boxed{\phantom{\text{angle}}}$

(d) $\boxed{\text{whole turn}} = \boxed{\text{obtuse}} + \boxed{\text{right angle}} + \boxed{\text{right angle}} + \boxed{\phantom{\text{angle}}}$

(4 marks)

2. Work out:

$$(0.264 \times 100) + (106 \div 10) - 17.6$$

_____ (4 marks)

3. The driver of a van spent Lm1.92 on diesel for a journey.

A litre of diesel costs 24 cents.

The van travels 25km on 1 litre of diesel.

How long was the journey?

_____ km

_____ (4 marks)

4. A carpenter has a plank of wood 3.2m long.

(a) He cuts off $\frac{1}{4}$ of it.

How long is the piece cut off in centimetres?

_____ cm

(b) What percentage of the whole plank is the **remaining** part?

_____ %

_____ (4 marks)

5. Here is a recipe for **30** small cakes:

<p><u>Main ingredients</u></p> <p>3 eggs 270g margarine 450g flour 330g sugar</p>

How much of each ingredient is needed to make **20** similar small cakes?

_____ eggs

_____ g margarine

_____ g flour

_____ g sugar

(4 marks)

6. Seven kilograms of oranges cost Lm2.59 from **shop A**.
Five kilograms of similar oranges cost Lm1.95 from **shop B**.

(a) Which shop sells the **cheaper** oranges, and **by how much** per kilogram?

(b) I want to buy **10 kg** oranges. Shop _____ cents
How much would I save by buying from one shop and not the other?

_____ cents

(6 marks)

7. Rachel is using a spreadsheet to work out a problem. She types in **8**, **2** and **5** in three different cells. Her answer appears in cell **D2**.

	A	B	C	D
1				
2	8	2	5	30

Which formula did she type?

- (i) $(A2 - B2) * C2$
 (ii) $A2 - B2 * C2$
 (a) (iii) $(A2 + B2) * C2$

Rachel now types **6** in cell **A2**, **1** in cell **B2** and **3** in cell **C2**. What answer will appear in **D2**?

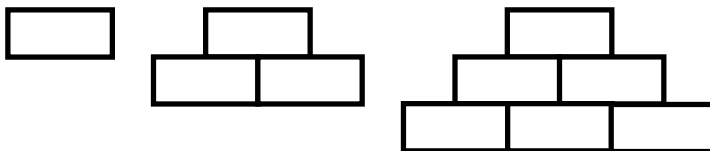
- (b)

Rachel types in again **4** in cell **A2**, **6** in cell **B2** and **-3** in cell **C2**. What is her answer now in **D2**?

- (c)

(6 marks)

8. The following are patterns made up of bricks:



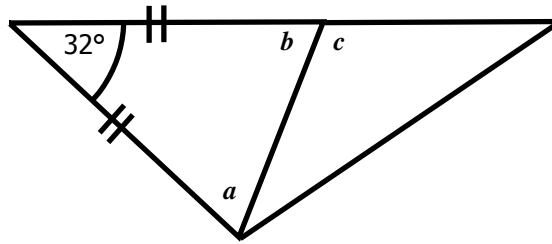
The **first pattern** has **one** brick, the **second** has **three** bricks, and so on.

- (a) Draw the **fourth** pattern.
 (b) Complete the following table:

Pattern	1st	2nd	3rd	4th	...	8th
Number of bricks	1	3				

(6 marks)

9. (a) Find angles a , b , and c .

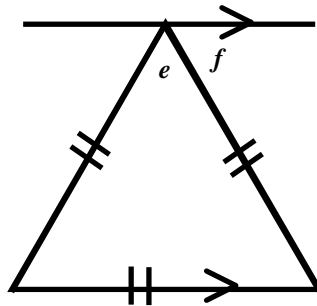


$a =$ _____

$b =$ _____

$c =$ _____

(b) Find angles e and f .



$e =$ _____

$f =$ _____

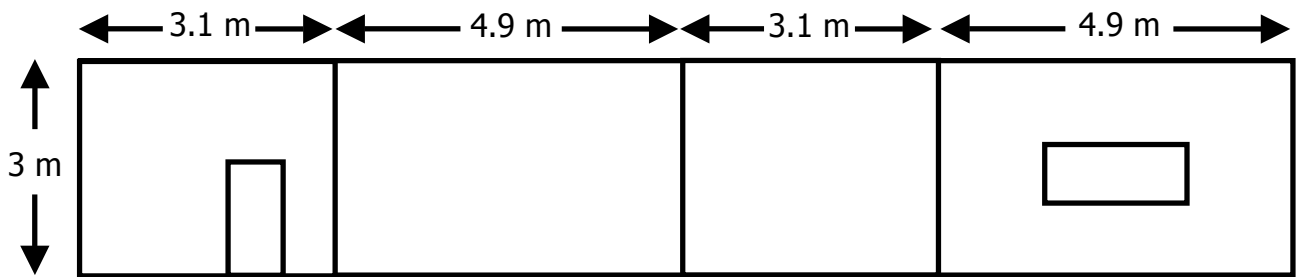
(6 marks)

10. (a) Construct an equilateral **triangle ABC** of side **8cm**.
X is a point on **BC**, such that line **AX** is perpendicular to **BC**.
- (b) Construct **AX**.
- (c) Measure **AX** in cm correct to one decimal place.

cm

(6 marks)

11. The diagram shows the net of four walls of a boy's bedroom:



The room is 3.1 m wide, 4.9 m long and 3 m high.
 The door is 200 cm high and 90 cm wide.
 The window is 120 cm high and 150 cm wide.

- (a) Father wanted to paint the walls.

What is the total area of the walls to be painted in m^2 , giving your answer correct to the nearest m^2 ?

_____ m^2

- (b) Mother wanted to buy a fitted carpet for the room.

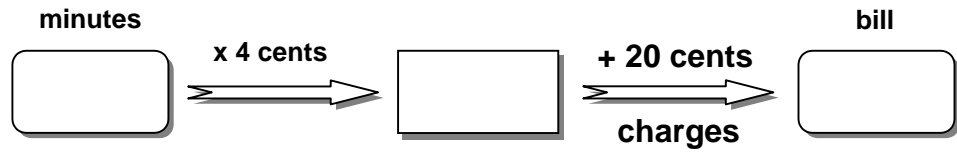
What is the area of the floor in m^2 , correct to one decimal place?

_____ m^2

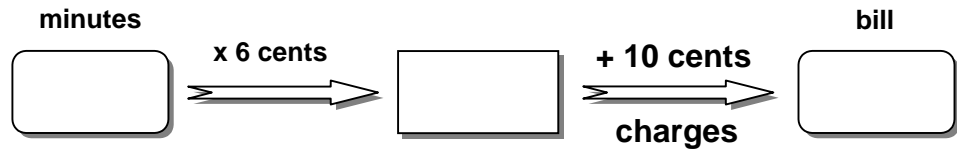
_____ (8 marks)

12. Two mobile phone companies use different function machines to work out their bills:

FLASH MOBILES



BUDGET CALLS



- (a) Samuel wants to use his mobile phone for calls lasting 9 minutes each.

Which company is **cheaper** for him, and **by how much** per call?

_____ cents

- (b) Alison wants to use her mobile phone for calls lasting 4 minutes each.

Which company is **cheaper** for her, and **by how much** per call?

_____ cents

_____ (8 marks)

13. (a) Simplify:

(i) $6 + 3x - 5x$

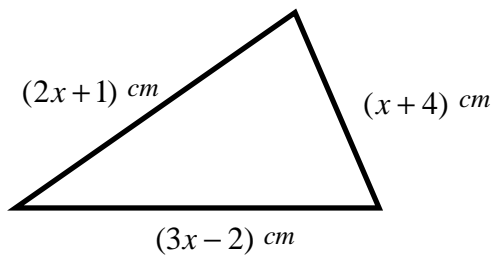
(ii) $5 - 5x + 4$

(b) Solve: $6 + 3x - 5x = 5 - 5x + 4$

$x =$ _____

The lengths of the sides of a triangle are $(2x + 1)$ cm, $(x + 4)$ cm and $(3x - 2)$ cm.

(c) Find the perimeter when $x = 2$.



_____ cm

_____ (8 marks)

14. (a) Plot these points on the graph below.

A(-2, 1), B(1, 4), C(4, 1) and D(1, -2)

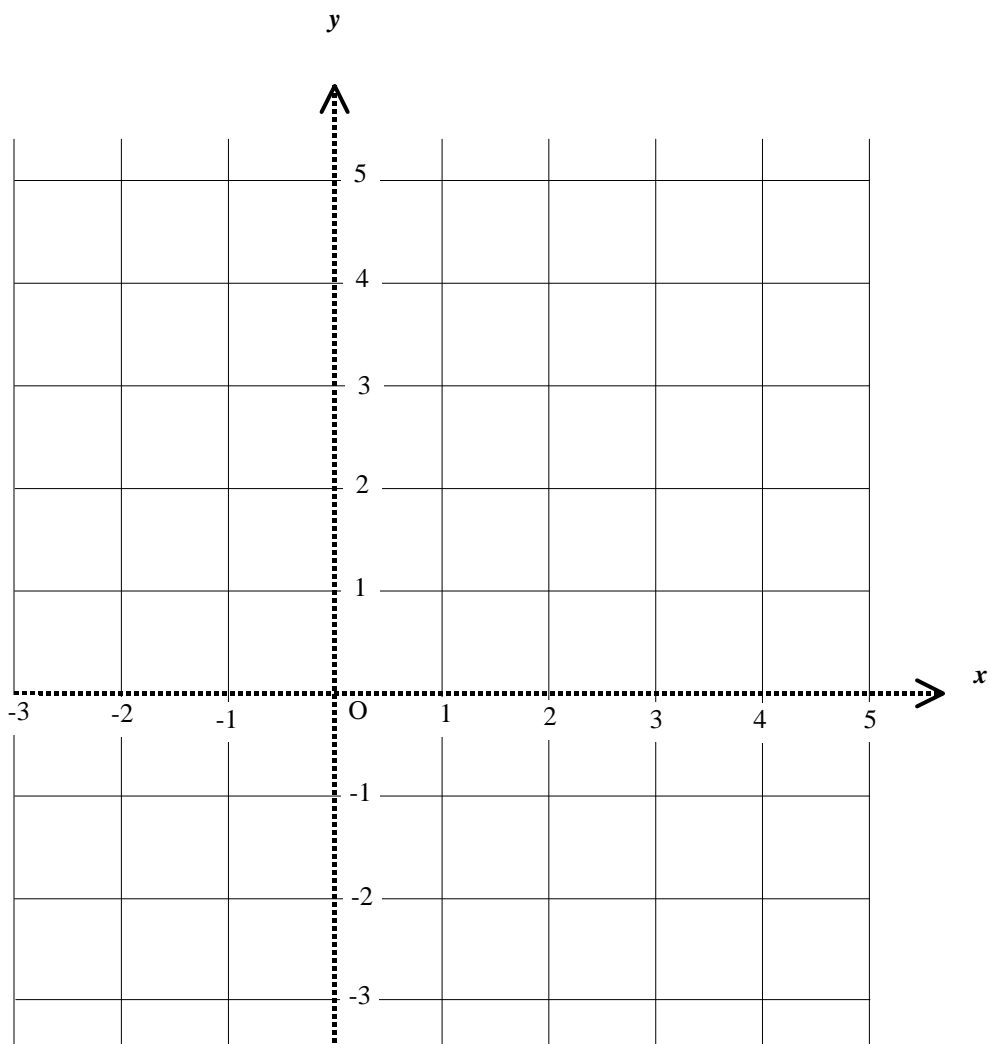
(b) Join **A** to **B**, **B** to **C**, **C** to **D** and **D** to **A**.

(c) What is the name of this shape?

(d) Draw all the lines of symmetry of the shape.

These lines of symmetry meet at **P**.

(e) The co-ordinates of this point **P** are (____ , ____)



(8 marks)

15. Simon keeps a record of the traffic passing his house before leaving for school.

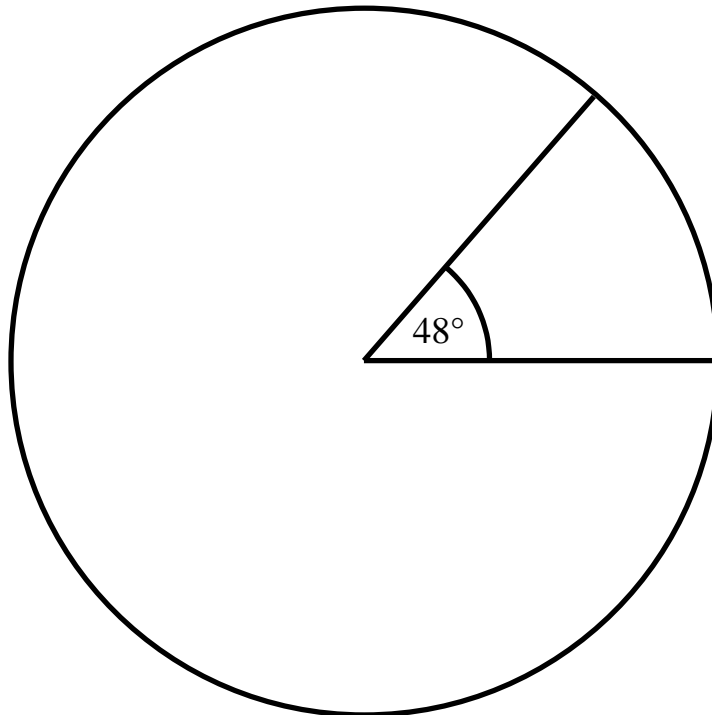
He notes down each type of vehicle that he sees.

bus van car bicycle motorbike car
 motorbike car car bicycle car bicycle
 car motorbike bus bicycle car car
 bus motorbike car car bus van
 car car motorbike bicycle van motorbike

(a) Use the above record to complete the table below:

vehicle	bus	van	car	motorbike	bicycle
frequency	4				
angle	48°				

(b) Represent this information on the pie chart below, complete with labelling.
)



(8 marks)

