

# KULLEGG SAN BENEDITTU Secondary School, Kirkop

Mark

HALF YEARLY EXAMINATION – 2014/2015

Track 2

FORM 3

**MATHEMATICS** Track 2

TIME: 30 mins

Non Calculator Paper

Name: \_\_\_\_\_

Class: \_\_\_\_\_

Question	1	2	3	4	5	6	7	Total
Max. Mark	4	3	3	8	3	2	2	25
Mark								

## Instructions to Candidates

- Answer all questions.
- This paper carries a total of 25 marks.
- Calculators and protractors are not allowed.
- All necessary working must be shown.

1. Fill in:

(a) 1.5 kg = \_\_\_\_\_ g

(b) 98.7 litres = \_\_\_\_\_ cm<sup>3</sup>

(c) 634 mm = \_\_\_\_\_ cm

(d) 2350 ml = \_\_\_\_\_ litres

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(4 marks)

2. (a) Simplify 12 : 60 as much as possible.

Ans: \_\_\_\_\_

(b) Find the missing quantity:

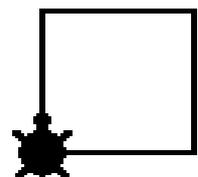
: 6 = 40 : 48

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(3 marks)

3. This logo statement draws a square of sides 50 turtle steps. Fill in the missing commands.

Repeat \_\_\_\_\_ [FD \_\_\_\_\_ RT \_\_\_\_\_]



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(3 marks)

4. Work out these fractions and give your answers in their simplest form.

(a)  $\frac{1}{6} + \frac{7}{12}$

Ans: \_\_\_\_\_

(b)  $\frac{11}{24} - \frac{3}{8}$

Ans: \_\_\_\_\_

(c)  $\frac{2}{9} \times \frac{3}{10}$

Ans: \_\_\_\_\_

(8 marks)

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5. Work out:

(a)  $(+10) - (-8)$

Ans: \_\_\_\_\_

(b)  $4 \times (-2)$

Ans: \_\_\_\_\_

(c)  $(-12) \div (+3)$

Ans: \_\_\_\_\_

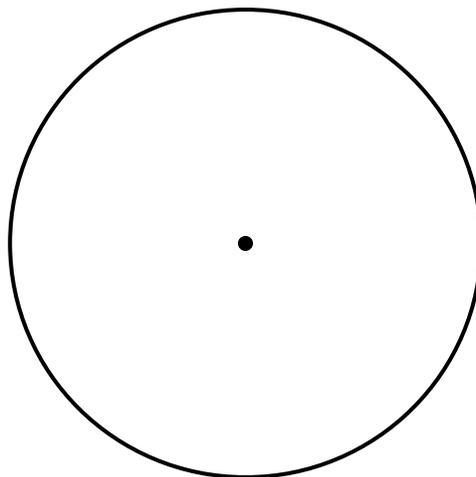
(3 marks)

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6. Use the circle below to draw and label:

(a) a chord

(b) a sector



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(2 marks)

7. (a) Change  $2\frac{1}{4}$  into an improper fraction.

Ans: \_\_\_\_\_

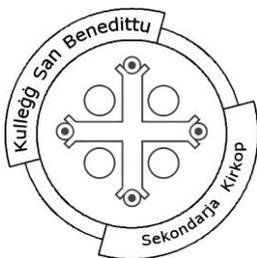
(b) Change  $\frac{17}{3}$  into a mixed number.

Ans: \_\_\_\_\_

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(2 marks)

**End of Non-Calculator Paper**



# KULLEGG SAN BENEDITTU Secondary School, Kirkop

Mark

HALF YEARLY EXAMINATION – 2014/2015

Track 2

FORM 3

**MATHEMATICS** Track 2

TIME: 1hr 30mins

## Main Paper

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	Total	Non	Global Mark
Max. Mark	8	7	2	2	8	6	7	2	6	3	11	4	9	75	25	100
Mark																

**DO NOT WRITE ABOVE THIS LINE**

Name: \_\_\_\_\_

Class: \_\_\_\_\_

CALCULATORS ARE ALLOWED BUT ALL NECESSARY WORKING MUST BE SHOWN.

ANSWER ALL QUESTIONS

1. (a) Underline the correct answer:

$a \times a =$  (i)  $a^2$  (ii)  $2a$  (iii)  $a$  (iv)  $0$

- (b) Simplify  $2b + 5c + 4b - 3b + 2c$

Ans: \_\_\_\_\_

(c) Expand  $5(3b + 2 - c)$

Ans: \_\_\_\_\_

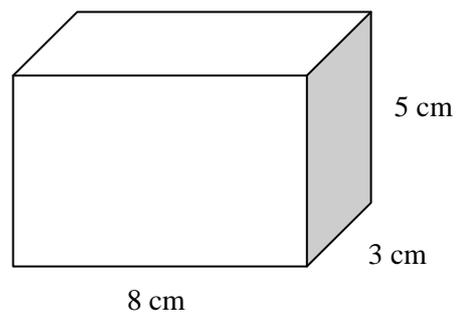
(d) Solve  $2x - 5 = 7$

Ans: \_\_\_\_\_

(8 marks)

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2. (a) Find the **total surface area** of this cuboid.



Ans: \_\_\_\_\_  $\text{cm}^2$

(b) What is the **volume** of the given cuboid?

Ans: \_\_\_\_\_  $\text{cm}^3$

(7 marks)

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3.  $-5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5$

Choose numbers from the above list to fill in the missing numbers:

(a)  $-4 - \square = \textit{lowest possible answer}$

What is the **answer** to the above calculation?

Ans: \_\_\_\_\_

(b)  $-4 - \square = \textit{highest possible answer}$

What is the **answer** to the above calculation?

Ans: \_\_\_\_\_

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(2 marks)

4. A programme is 200 minutes long. Write 200 minutes in hours and minutes.

Ans: \_\_\_\_\_ hours \_\_\_\_\_ minutes

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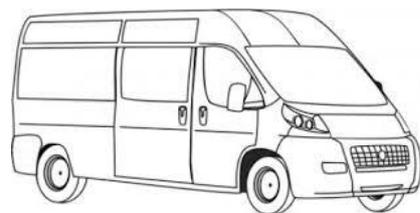
(2 marks)

5. (a) There are **420 vehicles** in a car park. 80 are vans and the rest are cars.

(i) What is the ratio of *vans* : *cars*. Simplify your answer.

Ans: \_\_\_\_\_ : \_\_\_\_\_

- (ii) The 80 vans in the car park are white and red in colour. The ratio of white vans is to red vans is 3 : 5. Find the number of white vans.



Ans: \_\_\_\_\_ vans

- (b) The scale of a drawing is 1 : 500. What **actual length** is represented by 2.8 cm? Give your answer in metres.

Ans: \_\_\_\_\_ m

(8 marks)

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6. (a) Factorise:  $6f + 15g$

Ans: \_\_\_\_\_

- (b) (i) Rearrange the formula  $y = 3x - 2$  to **make  $x$  the subject of the formula.**

Ans: \_\_\_\_\_

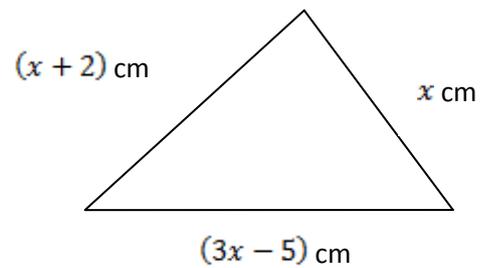
- (ii) Hence find the value of  $x$  when  $y = 4$ .

Ans:  $x =$  \_\_\_\_\_

(6 marks)

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7. (a) Write down an **expression** for the perimeter of this triangle.



Ans: \_\_\_\_\_

- (b) **Simplify** your answer.

Ans: \_\_\_\_\_

- (c) The perimeter of this triangle is **27 cm**.

Use your answer in (b) to write down an **equation in terms of  $x$** .

Ans: \_\_\_\_\_

- (d) **Solve** the equation in (c) to find the value of  $x$ .

Ans:  $x =$  \_\_\_\_\_

- (e) Find the **length of the base** of the triangle.

Ans: \_\_\_\_\_ cm

(7 marks)

8. Jake cycles **12 km** at a speed of **18 km per hour**. How many **minutes** does this ride take?

Ans: \_\_\_\_\_ minutes

(2 marks)

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9. (a) Underline the correct answer.

(i) The **sum** of the exterior angles of any polygon is:

(A)  $180^\circ$

(B)  $270^\circ$

(C)  $360^\circ$

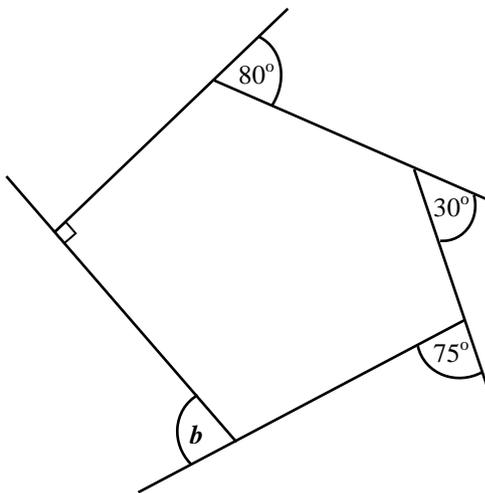
(ii) The size of an exterior angle of a **regular pentagon**.

(A)  $360^\circ$

(B)  $72^\circ$

(C)  $110^\circ$

(b) Calculate the size of the angle marked ***b*** in the following polygon.



Ans:  $b =$  \_\_\_\_\_

(6 marks)

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10. Find the gradient of a line AB, where A = (-2, 5) and B = (6, 3).

Ans: gradient = \_\_\_\_\_

(3 marks)

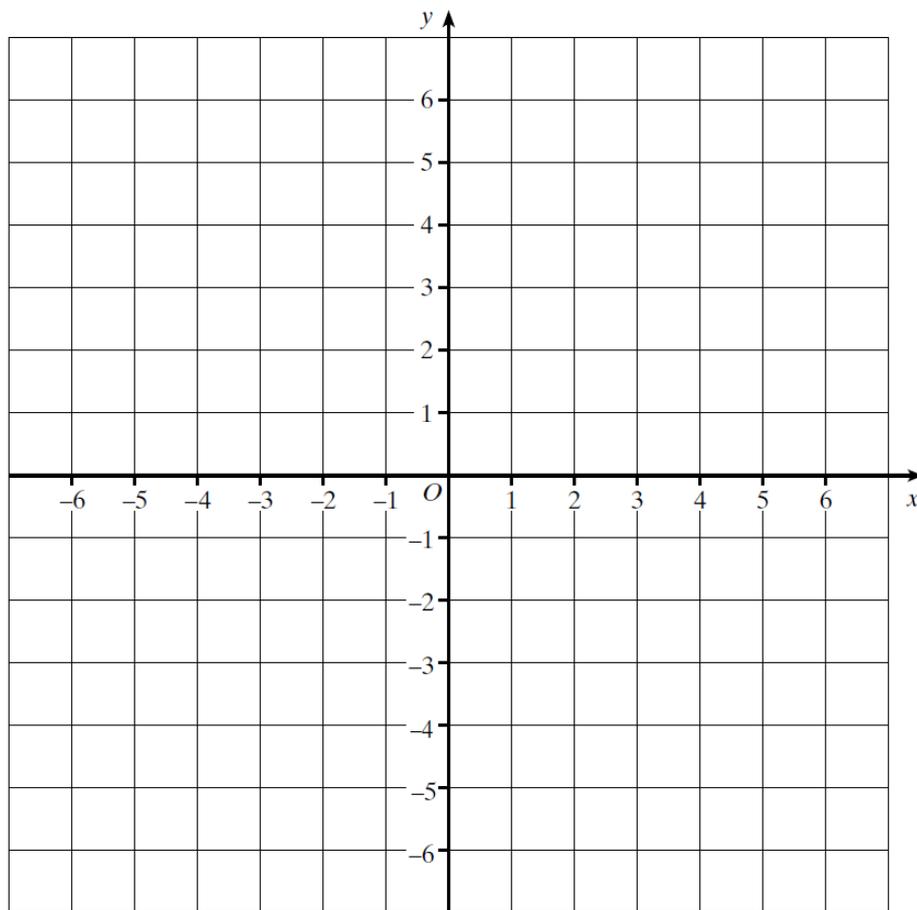
11. (a) **Complete** the table for the graph  $y = 2x - 3$ .

$x$	-1	0	2	4
$2x$				
-3			-3	
$y$		-3		5

(b) Use the above table to write **4 co-ordinates**:

( \_\_\_\_, \_\_\_\_) ( \_\_\_\_, \_\_\_\_) ( \_\_\_\_, \_\_\_\_) ( \_\_\_\_, \_\_\_\_)

(c) **Plot** the graph of  $y = 2x - 3$  on the grid below.



(d) Use your graph to find the value of  $y$  when  $x = 3$ .

Ans:  $y =$  \_\_\_\_\_

(e) What is the value of the  $y$ -intercept?

Ans: \_\_\_\_\_

(f) Does the point  $(-4, -11)$  lie on the line? **Show your working.**

Ans: Yes  No

(11 marks)

12. (a) Draw a circle of radius 4 cm.

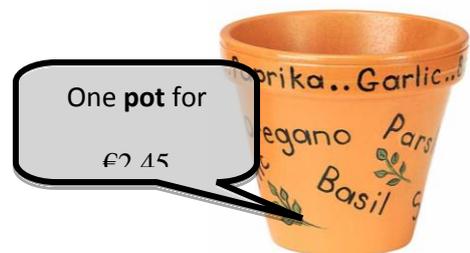
(b) Use this circle to **construct a regular hexagon** of side 4 cm.

(4 marks)

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13. A shop sells garden pots for €2.45 **each**.

(a) What is the cost of 4 pots?



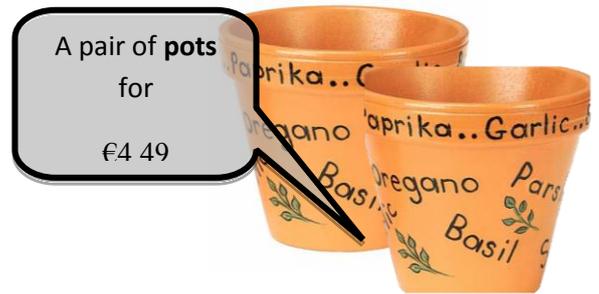
Ans: € \_\_\_\_\_

(b) How many pots can you buy with €12?

Ans: \_\_\_\_\_ pots

The shop also sells the pots in **pairs**. One pair of pots costs €4.49.

- (c) How many pairs of pots can you buy with €12?



Ans: \_\_\_\_\_ pairs of pots

- (d) What is the **greatest** number of pots that you can buy with €16?

Ans: \_\_\_\_\_ pots

(9 marks)

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**END OF EXAM**