

**KULLEGĠ SAN BENEDITTU**  
**Boys Secondary School, Kirkop**



**HALF-YEARLY EXAMINATIONS – FEBRUARY 2014**

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FORM 4

**MATHEMATICS** Scheme A

TIME: 20 mins

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**Non Calculator Paper**

**Mark**

**DO NOT WRITE ABOVE THIS LINE**

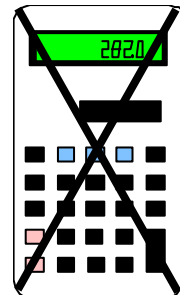
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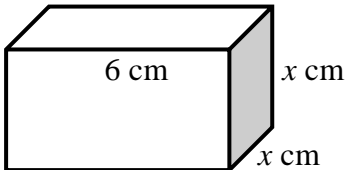
**NAME AND SURNAME:** \_\_\_\_\_ **CLASS:** \_\_\_\_\_

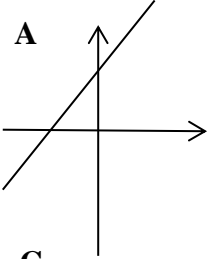
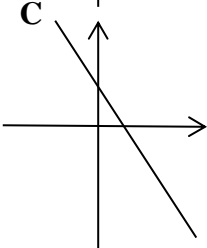
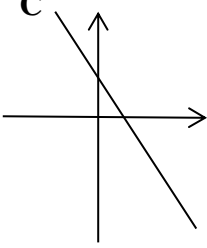
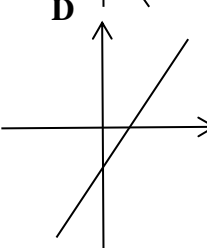
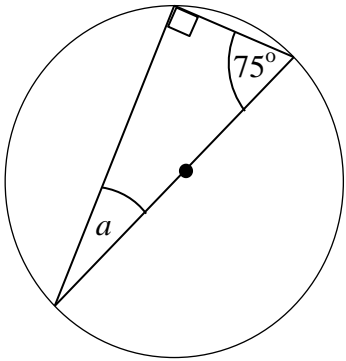
**INSTRUCTIONS TO CANDIDATES:**

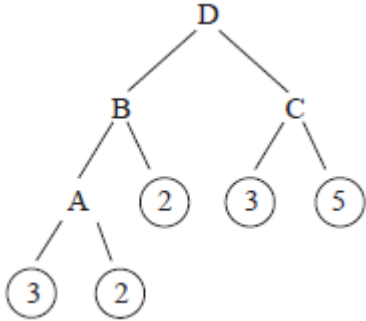
**Read all the questions carefully before you start answering.**

- Answer all questions.
- This paper carries 20 marks.
- **Calculators, protractors** and other mathematical instruments are **NOT ALLOWED**.
- On your desk you should have nothing except for **pen, pencil, ruler** and the **examination paper**.
- You are not required to show your working. However, space for working is provided if you need it.



No.	Question	Space for working, if required.
1	If $x = \frac{ab^2}{c}$ , find $x$ when $a = -1$ , $b = -2$ and $c = 2$ . _____	
2	Express $\left(\frac{2}{3}\right)^{-2}$ as an <b>improper fraction</b> . _____	
3	Given that $2^{10}$ is approximately equal to 1000, Then, 1 000 000 is approximately equal to $2^n$ . What is the value of $n$ ? $n =$ _____	
4	Given that $\frac{15.3 \times 12.4}{5.1 \times 31} = 1.2$ Find the value of : $\frac{1.53 \times 1.24}{5.1 \times 0.31}$ _____	
5	The cost of a ticket is reduced from €25 to €20. What is the percentage decrease? _____	
6	Evaluate: $(6.8)^2 - (3.2)^2$ _____	
7	Fill in the missing command needed to draw an equilateral triangle of sides 30 turtle steps.  <b>PD REPEAT 3[FD 30 RT _____]</b>	
8	 <p>The volume of this cuboid is <math>54 \text{ cm}^3</math>. Find the value of <math>x</math>. _____</p>	

9	<div style="display: flex; align-items: center;"> <div style="flex: 1;"> <p><b>A</b></p>  <p><b>C</b></p>  </div> <div style="flex: 1;"> <p><b>B</b></p>  <p><b>D</b></p>  </div> <div style="flex: 1;"> <p>Which of these graphs is the best sketch of the line with equation <math>y = -3x + 2</math> ?</p> <p style="text-align: right;">_____</p> </div> </div>	
10	<p>Convert:</p> <p style="text-align: center;"><math>2.5 \text{ m}^2</math> to <math>\text{cm}^2</math></p> <p style="text-align: right;">_____ <math>\text{cm}^2</math></p>	
11	<p>Simplify:</p> <p style="text-align: center;"><math>\sqrt{\frac{49x^3y^4}{x}}</math></p> <p style="text-align: right;">_____</p>	
12	<div style="display: flex; align-items: center;"> <div style="flex: 1;">  </div> <div style="flex: 1;"> <p>Find the value of <math>a</math>.</p> <p style="text-align: right;">_____ °</p> </div> </div>	
13	<p>Make <math>a</math> subject of the formula.</p> <p style="text-align: center;"><math>v = u + at</math></p> <p style="text-align: right;"><math>a =</math> _____</p>	
14	<p>Give all the solutions to:</p> <p style="text-align: center;"><math>(x - 2)(x + 3) = 0</math></p> <p style="text-align: right;"><math>x =</math> _____</p>	

15	Factorise <b>completely</b> : $2x^2 - 8$ _____	
16	Find the value of: $\frac{2 \times 10^3}{4 \times 10^5}$ , giving your answer in <b>standard form</b> . _____	
17	Write the <b>positive</b> solution to: $(x + 2)^2 = 25$ $x =$ _____	
18	Find the value of <b>D</b> in this factor tree diagram.  _____	
19	$3^3 + 3^3 + 3^3$ is equivalent to: (A) $3^4$ (B) $9^3$ (C) $3^9$ (D) $27^3$ _____	
20	Kimberly tried to solve the quadratic equation: $x^2 + 5x = 6$  These are the steps she took. In which of the steps did she make a mistake?  <b>Step 1:</b> $x^2 + 5x - 6 = 0$ <b>Step 2:</b> $(x + 3)(x + 2) = 0$ <b>Step 3:</b> Either $(x + 3) = 0$ or $(x + 2) = 0$ <b>Step 4:</b> $x = -3$ or $x = -2$  _____	