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S t . C l a r e G i r l s
H . S C H O O L - G a t i t u

Form 3 | Term 2 | 121 A - Mathematics | 12-Mei-18 | Opener

ADM..... NAME CLASS TIME: 1 hr 30 min

INSTRUCTIONS:

1. Write your name, class and ADM number in the spaces provided above.
2. Answer all the questions provided in this question paper
3. All workings must be clearly shown
4. Any acts of cheating will render your examinations nullified
5. Confirm that this paper has 8 printed pages with 70 marks

For examiner's use only

<u>Candidate's Score</u>	<u>Max. Score</u>	<u>Teacher's Comment</u>
	70	

Answer all questions provided in this paper

1 a Evaluate:

3mks

$$\frac{4 \times 6 + \frac{1}{25} \div 0.05 + \frac{1}{5}}{(-3) \div (-6) + (23) - 6 \text{ of } 3}$$

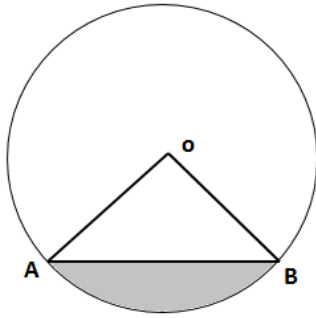
b Solve for y in the equation; $8^{(2y-1)} \times 32^y = 16^{(y+1)}$

3mks

2 The length of a rectangular table is $1\frac{1}{2}$ longer than its width. Find the length of the table if the area is $4\frac{1}{2} m^2$ **3mks**

3 William withdrew money from a SACCO. He spent $\frac{3}{8}$ of the money to pay Brenda's school fees at $\frac{2}{5}$ to pay for Anyango's fee. If he remained with Ksh. 12,330. Calculate the amount of money he paid for Anyango's fee. **4mks**

- 4 The figure below represents a circle with a diameter 28cm with a sector subtending an angle of 60° at the centre. **4mks**



Find the area of the shaded segment to 4-significant figures (take $\pi = 3.142$)

- 5 Thirty two men working at a rate of 9hrs a day can complete a piece of work in 7 days. How many more men working at the rate of 8 hers a day would complete the same work in 6 days? **3mks**

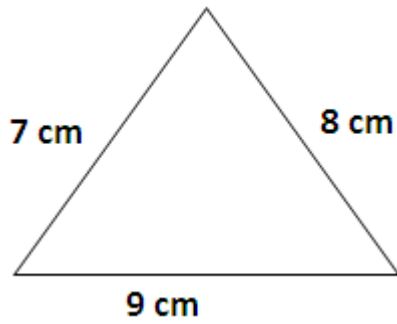
- 6 Wambui bought four pens and three rubbers for a total of sh17. While Jane bought five similar pins and two rubbers for a total of sh.16. Find the cost of a pin and a rubber. **3mks**

- 7 The mean mathematics mark for 8 students in form 3A is 65. The mean mark for 12 students in form 3D is 72. Calculate the mean mark for the combined group of 20 students. **3mks**
- 9 Use tables to evaluate x in $\frac{1}{y} = \frac{1}{24.3} + \frac{1}{13.1}$ Correct to 3 decimal places **4mks**
- 10 A sum of money is divided among three men x, y and z in ratio 5:3:1. If y has shs 700 more than z , calculate how much x has. **3mks**

- 11 The volume of water in a measuring cylinder reads 200cm^3 . When a cube is immersed into water, the cylinder reads 543cm^3 . Find;
- a Volume of the cube. **2mks**
- b The length of the side of the cube. **2mks**
- 12 A triangle has vertices A(2,5), B(1,-2) and C(-5,1)
Determine;
- a Equation of the line BC **3mks**
- b The equation of the perpendicular line from A to BC **2mks**
- 13 The volume scale factor of two similar cylinders is 27. Find;
- a Linear scale factor **2mks**
- b Area scale factor **2mks**

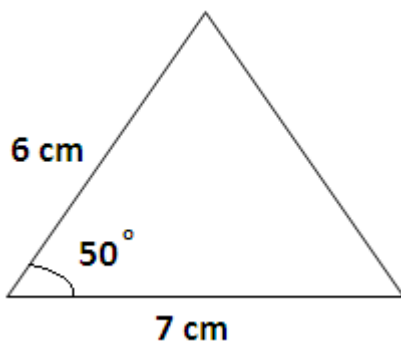
14 Find the areas of triangles below;

a



2mks

b



2mks

15 Truncate the following to three decimal places;

a 0.0006374

1mk

b 17.3489

1mk

16 Show that $(\sqrt{p} + \sqrt{q})^2 = p + q + 2\sqrt{pq}$

2mks

17 Simplify without using tables

$$\frac{\log 27 - \log 9}{\log 3}$$

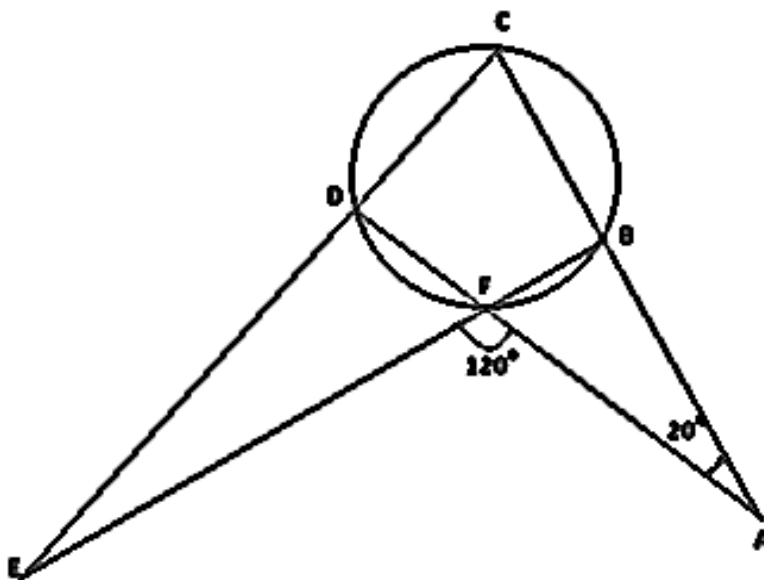
2mks

18 Omondi has 6 cans of regular soda and 15 cans of diet soda. He wants to create some identical refreshment that will operate during Arsenal football game. He also doesn't want to have any left over. Which is the greatest number of refreshment tables that could Omondi stock?

2mks

19 In the diagram below, $\angle CAD = 20^\circ$, $\angle AFE = 120^\circ$ and BCDF is a cyclic quadrilateral. Find $\angle FED$

3MKS



20 a Plot the graph of the function $y = x^2 + 3x + 1$ for the values $-5 \leq x \leq 2$.

3mks

X	-5	-4	-3	-2	1	0	1	2
X ²	25	16	9	4	1	0	4	2
+3X								
1	1	1	1	1	1	1	1	1
y								

Complete the table

b Plot a graph of the function $y = x^2 + 3x + 1$

4mks

c Use the graph of the function $y = x^2 + 3x + 1$ to solve $x^2 + 3x + 1 = 0$

2mks

