

THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF EDUCATION AND CULTURE
FORM TWO SECONDARY EDUCATION EXAMINATION, 1993

Answer ALL questions in this section. Show ALL
WORKING for each question.

0041

BASIC MATHEMATICS

TIME: 2½ Hours.

1. This paper consists of Sections A and B
2. Answer ALL questions in both Sections in the answer sheets provided.
3. In BOTH Sections A and B, ALL WORKING MUST BE SHOWN CLEARLY.
4. Unless stated otherwise, mathematical tables, squared papers and slide rules may be used.

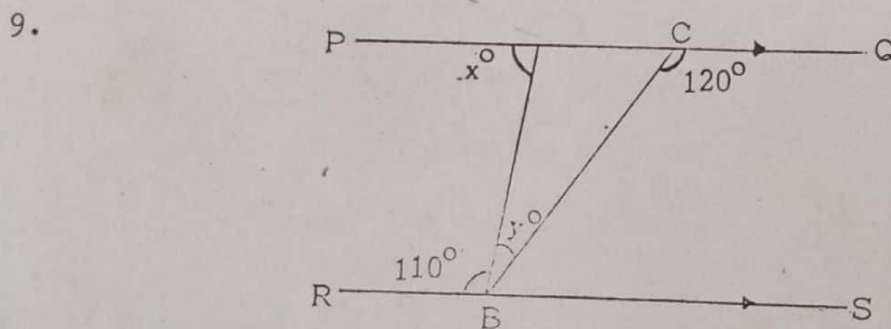
This paper consists of 5 printed pages.

- 2 -

SECTION A

Answer ALL questions in this section. Show ALL WORKING for each question.

- Find the product of the LCM and GCF of 6, 18 and 28.
- If x is directly proportional to y and $y = 7$ when $x = 18$; Find x when $y = 21$.
- If $\underline{a} = 4\underline{i} + 3\underline{j}$ and $\underline{b} = -2\underline{i} + \underline{j}$; Find the value of $4\underline{a} + 3\underline{b}$.
- Rationalize the denominator of $\frac{(\sqrt{6} + \sqrt{3})}{(\sqrt{6} - \sqrt{3})}$
- Joyce and Jane divided the profits of their business in the ratio 4:3. If Joyce got 1050/=; What was the total profit?
- Without using tables, evaluate $(2079)^2 - 2079 \times 2069$.
- Given that $4x^2 + ax + 9$ is a perfect square, find the possible value of a .
- If $p * q$ is define by $\frac{1}{2}p - 3q$, find the value of $(2*1) * (4*3)$.



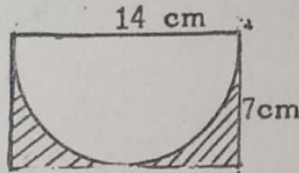
In the above diagram, calculate the value of x and y .

- Given that $A = \{1, 5\}$ and $B = \{\emptyset\}$, Find
(a) $A \cup B$
(b) $A \cap B$.
- Solve the equation $2x - 4 [8 - 3(x + 5)] = 0$.
- Given that $\cos A = 0.6$, where $\hat{A}$ is an acute angle. find, without using tables, $\tan \hat{A}$.
- Without using tables, find the value of $\log_{12} 144 + \log_5 125 - \log_3 3$.
(39, 4)
- The line joining the the points ~~39, 4~~ and (-3) has a gradient of 1. Write down the equation of the line.

- 3 -

15. Find the rational number in the form $\frac{a}{b}$ where a and b are integers and $b \neq 0$ from the number $0.\overline{23}$.
16. A rectangle measuring 14cm by 7cm has a semicircle which just touches the sides removed as shown in the diagram below. Find the perimeter of the shaded part.

$$\left[\pi = \frac{22}{7} \right]$$



17. Simplify, correct to 3 significant figures
- (a) $0.000659 + 0.00106 + 0.003407$
- (b) $28.243 \div 26$
18. Solve the simultaneous equations
- $$\begin{cases} 3x - 7y = 2 \\ x - 2y = 4. \end{cases}$$
19. Make l the subject of the formula in the formula $T = 2\pi \sqrt{\frac{l^2 + 3h^2}{3gh}}$
20. If shs.600/= amounts to 960/= for 5 years, what is the percentage rate of simple interest per annum?

SECTION B

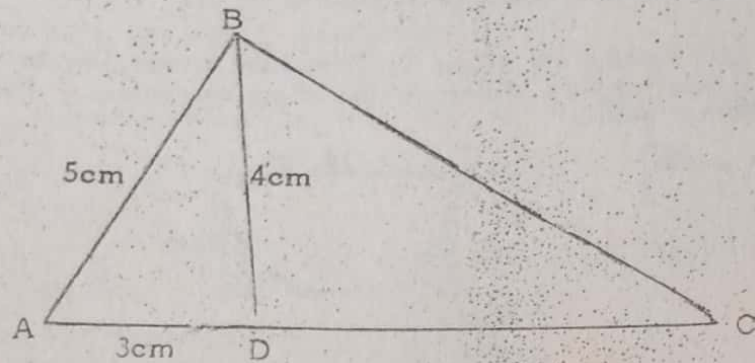
Answer ALL questions in this section.

Show ALL WORKING for each question.

21. A building has an angle of elevation of 35° from point A and an angle of elevation of 45° from point B. If the distance between A and B is 30m, what is the height of the building?
22. (a) Given that $\log_{10} 2 = 0.3010$ and $\log_{10} 3 = 0.4771$, evaluate $\log_{10} 360$.
- (b) Use mathematical tables to find the value of $\frac{(0.3955)^2 \times 431.8}{98.42}$

- 4 -

23.



Using the principle of similar triangles, find the length of $\overline{BC}$ and that of $\overline{DC}$ in the above diagram.

24. (a) The age distribution in a form I class was as follows:

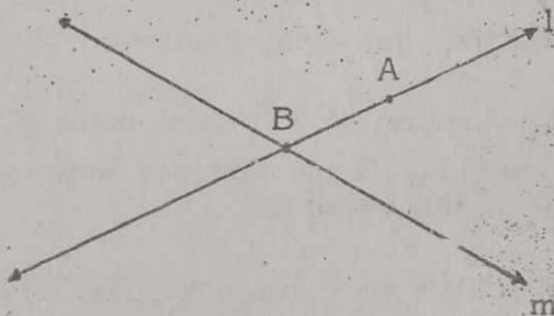
Less than 14	years	=	3
14 - 15	years	=	20
16 - 17	years	=	9
More than 17	years	=	4

Show this information on a pie chart.

(b) The scores in a mathematics test were 18, 14, 17, 18, 15, 17, 12, 13, 18 and 14. Find the

(i) mean (ii) mode (iii) median.

25. Two lines l and m intersect at point B making an angle of 40° . A is a point on line l such that $\overline{BA} = 3$ cm (see diagram).



- 5 -

- (a) Construct the locus of P such that P has the same distance to l and m
- (b) In the same drawing, construct the locus of P such that P has a distance of 2 cm from A .
- (c) How many points belong to both loci?
