

Candidate's Examination Number _____

SMZ

ZANZIBAR EXAMINATIONS COUNCIL

FORM THREE ENTRANCE EXAMINATION

041

MATHEMATICS

TIME: 2:30 HOURS

WEDNESDAY, 23RD DECEMBER 2020 A.M

INSTRUCTIONS TO CANDIDATES

- 1. This paper consists of TWO (2) sections A and B.**
- 2. Answer ALL questions in section A and any FOUR (4) questions in section B.**
- 3. Write your examination number on each page.**
- 4. Write your answers in the space provided.**
- 5. Use a blue or black pen in writing.**
- 6. Cellular phones, calculators and unauthorized materials are not allowed in the examination room.**
- 7. Mathematics tables are allowed in the examination room.**

FOR EXAMINER'S USE ONLY		
QUESTION NUMBER	MARKS	SIGNATURE
1.		
2.		
3.		
4.		
5.		
6.		
7.		
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9		
10		
11.		
12.		
13.		
14.		
TOTAL		

This paper consists of 14 printed pages

SECTION A: (60 Marks)

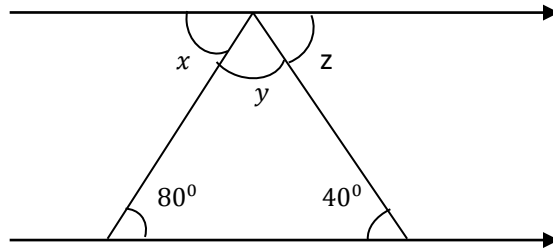
Answer ALL questions in this section.

1. a) Find the value of $4\frac{3}{4} \div 5\frac{1}{8}$.

b) Work out $2235 + 2126$.

2. Rationalize the denominator of $\frac{2}{2\sqrt{3}+\sqrt{2}}$

3. In the figure below, find the values of x , y and z .



4. a) Write 0.0745 in standard form.

b) Express 0.12 as a percentage.

5. a) Simplify the following expression $(3a^3b^2)^{-3}$

b) Make Y the subject of the formula, given that $X = \frac{Y+YM^2}{KZ}$

6. a) Simplify the expression $x(2y + 3) + y(3x + 4)$

b) Find the exterior angle of a regular nonagon.

7. The sum of the two numbers a and b is 30, and a is twice than b . Find the value of a and b .

8. a) Write in the box the correct mathematical sign $<$, $>$, $=$ from the pair of the numbers below:

i) 36% 0.36

ii) $1\frac{4}{5}$ 1.65

iii) 1.065 $1\frac{13}{20}$

b) The total mass of 20 similar iron bars is $50\text{kg}420\text{g}$. What is the mass of each bar?

SECTION B: (40 marks)**Answer ANY four (4) questions in this section.**

9. a) Solve for x if: $\left(\frac{1}{2}\right)^x \times \left(\frac{1}{8}\right)^{x+1} \times \left(\frac{1}{16}\right)^{2x-1} = \frac{1}{32}$

- b) Use logarithm to evaluate the following expression and give your answer to 3 significant figures.

$$46.22 \times 18.33$$

10. a) The buying price of the radio is sh. 5000 and the percentage profit is 30%. What is its selling price?
- b) Asha borrowed some money at simple interest of 12% per annum. After 2 years, she paid a total interest of sh. 5000. How much money did she pay?

12. a) In a class of 40 students, 18 are taking Kiswahili, 12 are taking both Kiswahili and Mathematics. How many students in this class are taking mathematics, if 6 students are taking neither Kiswahili nor Mathematics?
- b) Draw a Venn diagram to represent the relationship between the sets
 $A = \{1, 2, 5, 6, 7, 9, 10\}$ and $B = \{1, 3, 4, 5, 6, 8, 10\}$

13. a) If $z = \frac{z_1 z_2}{z_1 + z_2}$, evaluate z when $Z_1 = 50$ and $Z_2 = 65$

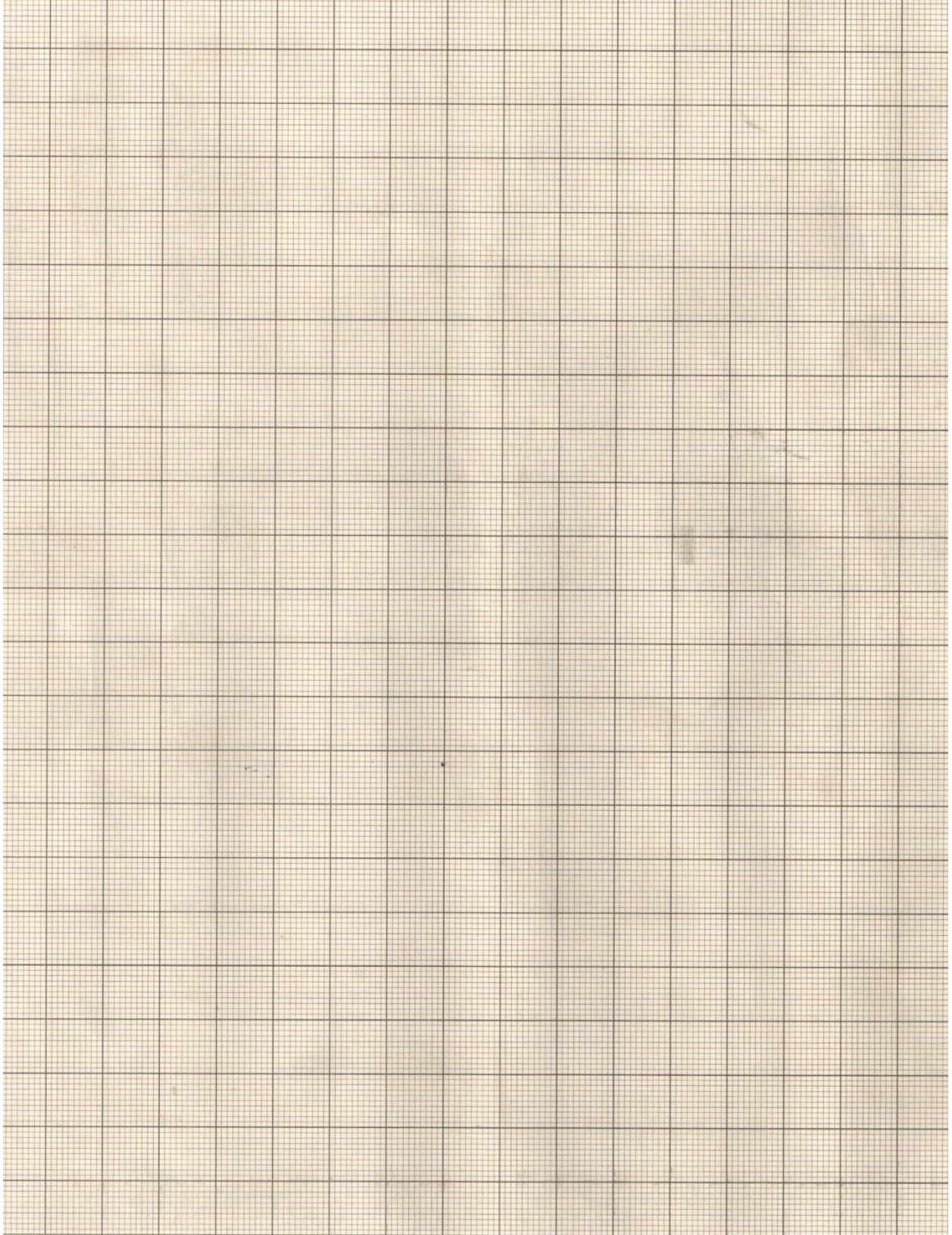
b) Every morning Asha walks 9km to and from school. How far does she walk in 150 days?

14. x and y are connected by the formula $y = 3x + 6$. Plot the graph of x against y for the values of x lies between -4 and 3 inclusive. Use your graph to find

a) y when $x = 2.5$

b) y when $x = -1.5$

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ROUGH WORK