Candidate's Examination No.....

THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION AND VOCATIONAL TRAINING

FORM TWO SECONDARY EDUCATION EXAMINATION, 2009

0041 **BASIC MATHEMATICS**

TIME: 2½ HOURS

INSTRUCTIONS

1. This paper consists of sections A and B.
2. Answer **ALL** questions in both sections showing clearly all the working and answers in the spaces provided.
3. Write your examination number on top right hand corner of every page.
4. **ALL** writing must be in blue or black ink **EXCEPT** for graphs which must be drawn in pencil.
5. Mathematical tables and geometrical instruments may be used.
6. Calculators and cellphones are not allowed in the examination room.

FOR EXAMINER'S USE ONLY					
QUESTION NUMBER	SCORE	INITIALS OF EXAMINER	QUESTION NUMBER	SCORE	INITIALS OF EXAMINER
1			13		
2			14		
3			15		
4			16		
5			17		
6			18		
7			19		
8			20		
9			21		
10			22		
11			23		
12			24		
TOTAL			TOTAL		
		GRAND TOTAL			

This paper consists of 12 printed pages.

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SECTION A (60 MARKS)

1. Given the following numbers:
   1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20.
   Identify all prime numbers and show them on a number line.

2. Given that $(2^{a-1})(3^{b+1}) = (3^9)(2^8)$. Find $\frac{a-b}{b}$

3. A form two student has to do eleven examination papers. The student has already done M of them. How many examination papers have been left if M = 3?

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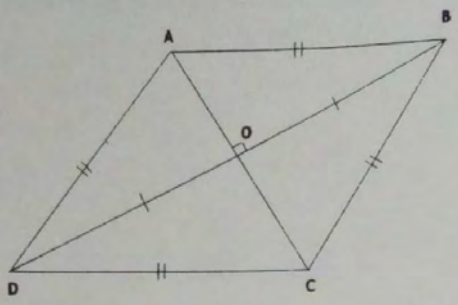
4. Solve 6812 x 4257 – 6812 x 3257

5. If Fatuma is 4 years less than Bakari and 3 times Fatuma's age is equal to 2 times Bakari's age. What are their ages?

6. Find 5.84 x 6 correct to 2 significant figures.

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7 In the following figure ABCD, AC = 8cm and BD = 10cm. Determine its area.



8. How many integers are in the given range $-3 < k \leq 6$?

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9. 50% of the content in a box weigh 8 kg 40 gm. What does the whole content weigh?

10. Which is greater $\sqrt[3]{27}$ or $\sqrt[5]{32}$?

11. A girl walks 4 km due North from point A and then walks 3 km due East to point P. What is the shortest distance from point A to P?

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12. If $(a - b)^2 = 20$ and $a^2 + b^2 = 10$, find the value of ab.

13. If $x - 65^o$ and $4x + 10^o$ are complementary angles, then what is the value of x?

14. By how much is the sum of $2\frac{4}{5}$ and $4\frac{1}{2}$ less than $8\frac{1}{10}$?

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15. Find the simple interest on180, 000/= for 3 years at the rate of 5% per year.

16. Without using mathematical tables, complete the table below.

θ^o	$15^o + 15^o$	$20^o + 25^o$
$Sin\theta$		
$Cos\theta$		
$Tan\theta$		

17. If log 2 = 0.3010, log 3 = 0.4771 and log 7 = 0.8451. Evaluate log 42

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18. In a box of 200 books, 150 have red colour and the rest have blue colour. What is the percentage of each colour?

19. Given A = {mango, orange}. How many subsets are in set A? List them.

20. What is the centre of an enlargement, given that the image of A (3, 2) under the enlargement scale factor 2 is A' (6, 4)?

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SECTION B (40 MARKS)

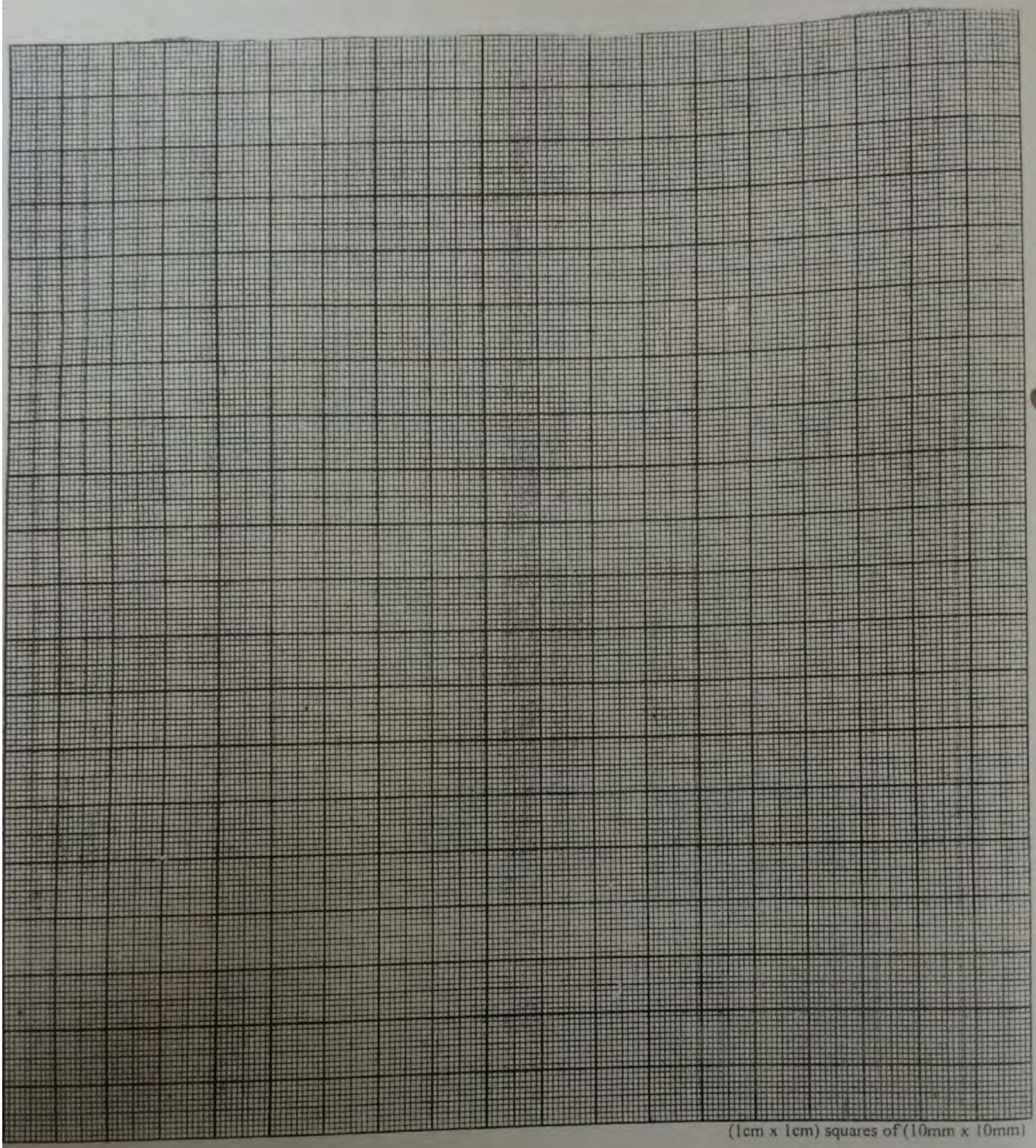
21. The following are the masses in kg of 30 form II students of Maendeleo Secondary School:

43	45	50	47	51	58	52	47	42	54
61	50	45	55	57	41	46	49	51	50
59	44	53	57	49	40	48	52	51	48

(a) Prepare a frequency distribution table by grouping the data values in the class width of 5

(b) Use the table in part (a) above to draw a Histogram of the data.

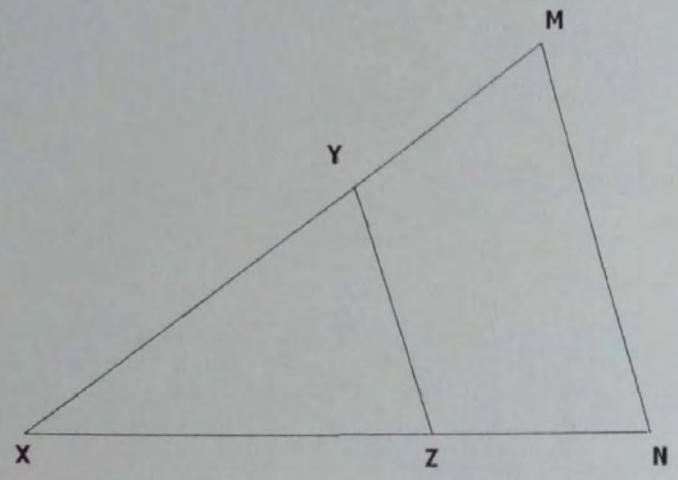
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(1cm x 1cm) squares of (10mm x 10mm)

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22. In the figure below: $\frac{XN}{XZ} = \frac{3}{2}$, $\frac{XM}{XY} = \frac{3}{2}$ and $\frac{NM}{ZY} = \frac{3}{2}$



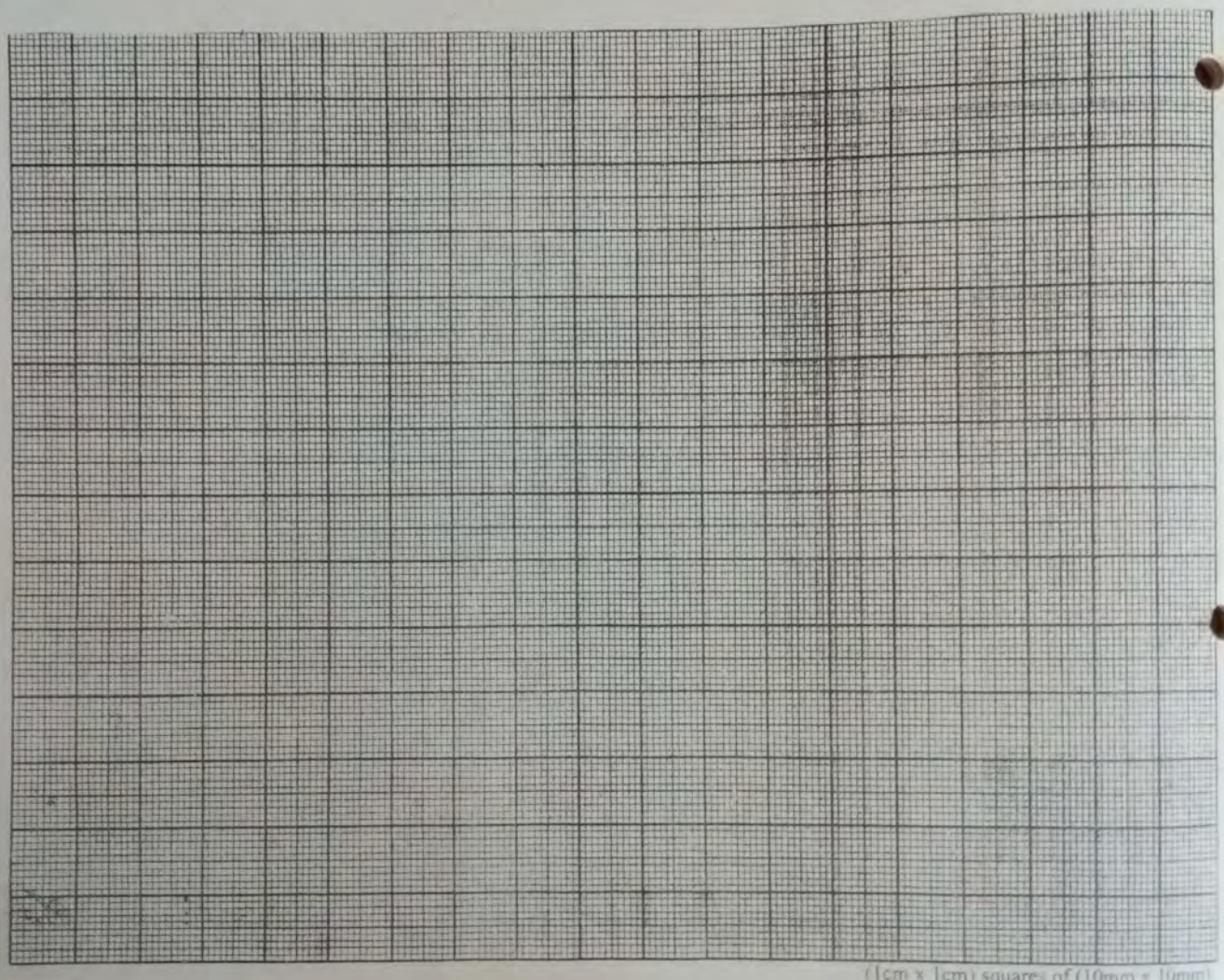
Name the triangles which are similar and identify the corresponding angles.

23. An observer on top of a cliff 40 m above sea level views a ship on the sea at an angle of depression 35°. How far is the ship from the foot of the cliff?

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24. Solve graphically the following pair of equations:

$$\begin{cases} x + 3y = 0 \\ x = 3y + 6 \end{cases}$$



(1cm x 1cm) squares of (10mm x 10mm)

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