TRENDING-GHANA EXAMINATIONS CONSULTS
(INTELLIGENCE IS OUR HALLMARK)

NAME: ....

INDEX NUMBER: ....

DATE: ....

FIRST TERM MOCK ASSESSMENT I

FORM THREE (3)

MOCK ONE (1)   **MATHEMATICS 2 & 1**   2 HOURS

This examination consists of two papers; Paper 1 and Paper 2. Answer four questions only from Paper 2. All questions carry equal marks.

INSTRUCTIONS

- *Do not open this booklet until you are told to do so*

- *While you are waiting, read the instructions carefully*

- *Write your **name**, **index number** and **date***

- *Do not talk to your friends during exams*

- *Leave space between every sub – question*

- *Direct all questions to the invigilator during exams*

- *Do not start work until you are told to do so.*

Answer **four** questions **only** from this part

Q1. a) Solve the inequality: $5x - 3(x - 1) \geq 39$

   b) Illustrate your answer on a number line

   c) Solve the equation: $\frac{2}{3}(x + 2) = \frac{1}{4}x + 3$

   d) One – fourth of a number added to one-fifth of the same number is less than or equal to 18. Find the range values of the number.

Q2. a) Make "**u**" the subject of the relation $\frac{1}{2}u + 3v^3 - 4u^3$

   b) i) Convert 11001_2 to a decimal numeral (base 10)
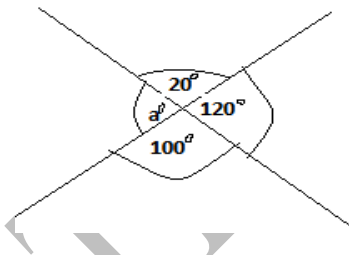   ii) Convert 77 to a number base two

   c) i) Simplify $\dfrac{3\frac{1}{3} - 2\frac{1}{2}}{\frac{5}{2}}$

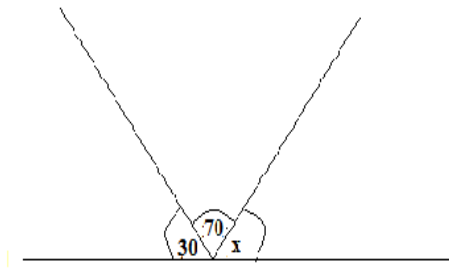   ii) If $3^{x+5} = 9^4$. Find x

Q3. Find the value of the lettered angles in the diagrams below

   a)   b)

   c) i) Simplify $\dfrac{a-3}{3} - \dfrac{2a+3}{6}$

   ii) Evaluate 111001_2
               $+ \quad 10101_2$
               _____

Q4. A teacher conducted a class test and the results is displayed in the frequency table below

Marks	1	2	3	4	5	6	7	8	9
Frequency	2	4	2	2	10	5	6	7	2

   a) Using the frequency table, find:
      i) the modal mark for the class
      ii) the number of candidates who wrote the test
      iii) the mean mark for the test.

   b) construct a frequency table for the data above

   c) Use the data above to draw a bar graph.

Q5. (a) Using a ruler and a pair of compasses only,
        i. Construct; α. Line $|AB| = 10$cm
               β. Perpendicular bisector at A to C.
               ¥. Angle ABC = 30
      ii) construct perpendicular bisector at B to D such that $|AC|$ $|BD|$
           Join A to D
     iii) measure |AD| and angle ADB

(b) A cylindrical water tank has a diameter of 14cm and a volume of 1694cm³. Calculate
   i. the height of the cylinder
  ii. the total surface area of the tank if it is opened at one end. (Take $\pi = \frac{22}{7}$)

(c) 18 cows produce 12 gallons of milk in 21 days. How many weeks would it take 24 cows to produce
   the same quantity of milk?

(d) Arrange the following in descending order 1.5, 75%, $\frac{14}{25}$, 5

Q6. (a) The distance from Ashongman to Tema is 5200m. Calculate the time in seconds a car moving at 40km/h takes to travel from Ashongman to Tema.

(b) Without using a calculator, evaluate $\dfrac{0.000108 \times 0.004340}{0.012 \times 0.14}$ leaving your answer in standard form.

(c) i. Factorize $- 4x^2 - 12x + 7$
   ii. If R (-6,4) and S (-10,7) find |RS|.

(d) The average age of a family of eight is 30years. The average age of the six children in the family is
   19years.If the mother is four years younger that the father, Calculate the age of the father.

1. Solve for **y** in the equation $\frac{1}{3}y + \frac{1}{5}y = 8$
a) 15   b) 30   c) 45   d) 60

2. Any well-defined collection of an object is known as
a) unit set   b) a set   c) a null set   d) universal set

3. Find the value of **t** the expression $6t + (2t° - t°)0$
a) 3   b) 7   c) 6   d) -7

4. Simplify $1\frac{1}{2} + 2\frac{1}{4} + 3\frac{5}{8}$
a) $\frac{1}{8}$ b) $\frac{59}{8}$ c) $\frac{3}{16}$ d) $\frac{5}{16}$

5. Expand the expression $2(3a + 2b)$
a) 6a - 2b   b) 5a + 4b   c) 6a + 4b   d) 10ab

6. If $n^2 + 1 = 50$, find **n**
a) 7   b) 24.5   c) 25   d) 49\

7. $\frac{1}{9}$ of 18 is............
a) 18   b) 2   c) -18   d) 9

8. A firm gives 15% commission to its salesmen. Find the commission given to a salesman who made a total sale of GH¢450.00
a) GH¢50.00   b) GH¢57.00   c) GH¢67.50   d) GH¢55.50

9. Simplify -35-(-15) + (-30)
a) -10   b) -20   c) -50   d) -80

10. Express 72 as a product of prime factors
a) $3^2 \times 2^2$ b) $3^2 \times 2^3$ c) $3^3 \times 2$ d) $3^2 \times 5$

11. If set B= {0}, then Set B is.................
a) Empty   b) unit set   c) equal set   d) equivalent set

12. Solve for h in the equation 15-2h = 6
a) -10.5   b) -9.0   c) -4.5   d) 4.5

13. Which of the following is not a quadrilateral?
a) Square   b) rectangle   c) rhombus   d) triangle

14. If P = {Multiples of 4 less than 16}. Find P
a) {4,8,10}   b) {4,8,12}   c) {1,4,8,12}   d) {4,8,12,16}

15. Change 17_{ten} to a base two numeral
a) 101   b) 1001   c) 1000   d) 10001

16. The addition below was obtained out in base x. Find x

$$\begin{array}{r} 243 \\ 221 \\ \hline 1014_x \end{array}$$

17. Make P the subject of the relation $\frac{PV}{T} = k$

a) $P = \frac{V}{KT}$ b) $P = \frac{KT}{V}$ c) $P = KT$ d) $P = VKT$

18. Solve for x in the expression **13x − 2(3x + 4) = 2**

a) 5   b) 4   c) $\frac{30}{7}$ d) $\frac{26}{7}$

19. Express 2345 in standard form

a) 2.345×10^{-1} b) 2.345×10^2 c) 2.345×10^3 d) 2.345×10^4

20. Express 25% as a fraction

a) $\frac{1}{20}$ b) $\frac{1}{4}$ c) $\frac{-1}{20}$ d) $\frac{2}{5}$

21. Solve for $(5^2 \times 6)^2 - (7 \times 3^2)$

a) 224437   b) 24273   c) 22437   d) 2437

22. Simplify $\frac{20}{5(-2)}$

a) -6   b) -10   c) -2   d) 2

23. Solve $5^4 \div 5^4$

a) 4   b) 5   c) 2   d) 1

24. Find the next two numbers in the sequence 2, 5, 9, 14, 20, ..., ...

a) 26, 34   b) 26, 35   c) 27, 34   d) 27, 35

25. Kofi bought four pencils at $200.00 each and five pens at $350.00 each. How many did he pay altogether?

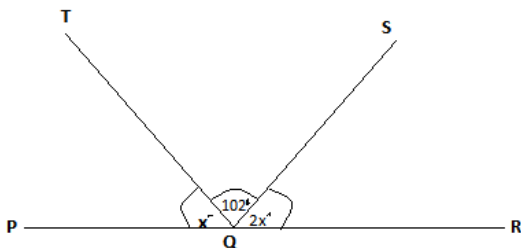a) $2,400.00   b) $2,550.00   c) 2,450.00   d) 2,650.00

26. What is 16% of $500,000.00?

a) $80.00   b) $8,000.00   c) $80,000.00   d) $4,20,000.00

27. Find the value of **m** if 4(m + 4) = -8

a) -6   b) -2   c) 2   d) 6

28.

In the figure PQR is a straight line. Angle TQP = x°, angle TQS = 102° and angle SQR = 2x°.
Find the value of x

a) 78   b) 39   c) 34   d) 26

29. Expand $(2a + b)(a - b)$
a) $2a^2 - 3ab - b^2$ b) $2a^2 - ab - b^2$ c) $2a^2 + ab + b^2$ d) $2a^2 + 3ab - b^2$

30. If $21:2x = 7:10$, find the value of x
a) 3   b) $2\frac{1}{4}$ c) 15   d) 30

31. Convert 25_{ten} to base two numerals.
a) 10001   b) 10011   c) 10101   d) 11001

The marks obtained by 10 children in a mental drill are 0, 3, 9, 3, 5, 7, 8, 1, 9, 9
Use this information to answer questions 32 – 34

32. What is the modal mark?
a) 3   b) 7   c) 8   d) 9

33. Find the median mark
a) 3   b) 5   c) 6   d) 7

34. Calculate the mean mark
a) -54   b) 5.4   c) 10   d) 54

35. When a certain number is subtracted from 10 and the results is multiplied by 2, the final result is 4. Find the number.
a) 8   b) 12   c) 16   d) -8

36. Which of the following statement is true?
a) $8 + 4 < 10$ b) $7 + 4 < 10$ c) $6 + 4 < 10$ d) $5 + 4 < 10$

37. Arrange the following numbers from the highest to the lowest. $\frac{2}{3}$, -7, 0
a) -7, 0, $\frac{2}{3}$ b) -7, $\frac{2}{3}$, 0   c) 0, $\frac{2}{3}$, -7   d) $\frac{2}{3}$, 0, -7

38. Make T the subject of the relation
$$l^2 = \frac{4\pi^2 T}{g}$$

a) $T = \frac{gl}{2\pi}$ b) $T = \frac{gl^2}{2\pi}$ c) $T = \frac{l^2}{4g\pi^2}$ d) $T = \frac{gl^2}{4\pi^2}$

39. How many lines of symmetry does a rectangle have?
a) 4   b) 2   c) 3   d) 1

40. Given that $25^x = 1$. Find x
a) 0   b) $\frac{1}{2}$ c) 1   d) 2