N.S.S.S
MID TERM II EXAMS 2012
S1 MATHEMATICS
2½ hours

Instructions:
*Attempt **all** the questions.*

1. Simplify $\frac{7x-5}{6} + \frac{11-13x}{12}$ (***02 Marks***)

2. The quadrilateral OABC has vertices O(0,0), A(4,1), B(8,6) and C(1,5).

   (i) Write down as column vectors OB and AC.
   (ii) Calculate the lengths of OB and AC. (***04 Marks***)

3. Laura, Mary and Nancy share Shs.7,350 in the share proportions 7:4:3. Find the difference in Laura's and Nancy's share. (***04 Marks***)

4. From a rectangular sheet of metal 75cm long and 40cm wide, 28 circular discs, each of radius 5cm are punched. Calculate the area of the sheet which remains. (***04 Marks***)

5. If a * b = $\frac{a+b}{2}$, calculate;

   (a) 8 * 20
   (b) (3 * 7) * 15. (***04 Marks***)

6. Find the exact value of 2½ + ($^3/_5$ x 1¼) - 1⅛. (***02 Marks***)

7. For the sets A and B n(A) = 15, n(B) = 19 and n(A ∩ B) = 7. Find n(A ∩ B^l) and n(A^l ∩ B). (***04 Marks***)

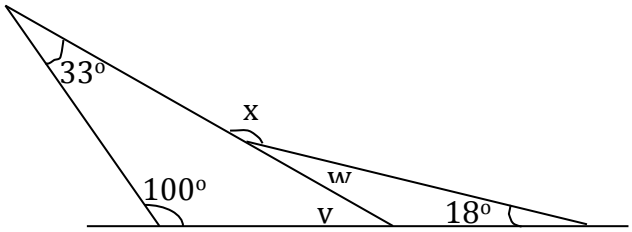
8. The warning lights flash at intervals of 18, 21 and 28 seconds respectively. Given that they all start flashing together, after how long will they again flash together? (***04 Marks***)

9. Convert 684_{nine} to base eight. (***04 Marks***)

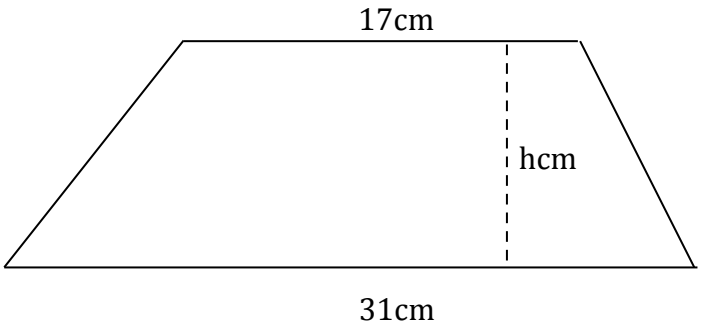
10. The angles of a hexagon are $4x^o$, $(5x - 10)^o$, $6x^o$, $(7x - 40)^o$, $8x^o$ and $(9x - 10)^o$. Find the value of x and the size of the six angles. (***04 Marks***)

11. ABCDE is a regular pentagon. Calculate the sizes of the angles of triangle ABC and ACD. (***04 Marks***)

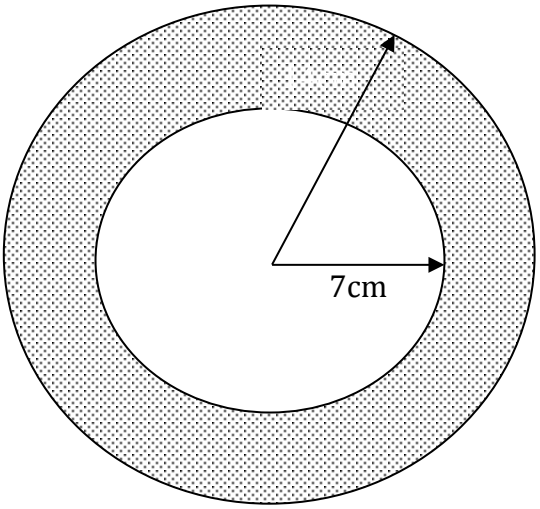
12. Calculate the sizes of the lettered angles in the figure below. (***04 Marks***)



13. The figure below shows a trapezium whose area is 456cm^2. Calculate the distance between its parallel sides. (***04 Marks***)



14. Find the area of the shaded region in the figure shown below. (***04 Marks***)



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