Annual Exams 2012 – Mathematics

8^{th} class

I. Understanding of Mathematical Concepts: 4 X 6 = 24

Section – A

1. The length and breadth of a rectangular field are in the ratio of 4 : 3. The area of the field is 1 hectare 2288 sq. m. Find the length and breadth of the field.

2. Two taps can fill a tub in 5 min. and 7 min. respectively. A pipe can empty it in 3 min. If all the three are kept open simultaneously. When will the tub be full?

3. In a class of 26 students, 8 take tea but not coffee and 16 take tea. How many students take coffee but not tea?

Section – B

4. The interior angles of a pentagon are in the ratio 4:8:6:4:5. Find the each angle of the pentagon.

5. Prove "The sum of three angles of a triangle is two right angles".

6. "If x is odd, then x^2 is odd". Prove it in direct method.

II. Problem solving: 4 X 6 = 24

Section – A

7. A trader sells two cycles at Rs. 1188 each and gain 10% on the first and losses 10% on the second. Find his profit or loss percent on the whole.

8. Prove that $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$ if A = {1,3,5,8}, B = {2,3,5,6}, C = {3,6,7,8}.

9. The G.C.D. and L.C.M. of two numbers are 12 and 72. If one of the numbers is 24, find the second number.

10. If $x + y + z = 0$, show that $x^3 + y^3 + z^3 = 3xyz$.

11. Using a graph paper, solve the equations $x + y = 3$, $x – y = 1$.

12. Construct ΔABC such that AB = 4 cm, BC = 6 cm, $\angle B = 90°$ and also draw its circumcircle.

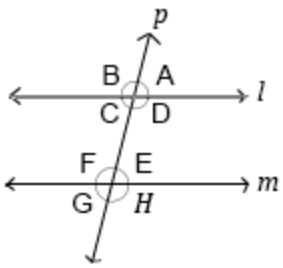
III. Logical Thinking and Reasoning: 4 X 4 = 16

Section – A

13. Ramu stated that "Set of natural numbers is group". Is it true? Give reasons.

14. The area of an isosceles right angled triangle is 32 sq. cm. Find the length of its sides.

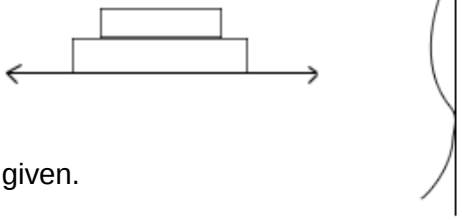
15. In the adjoining figure, l, m are a pair of coplanar lines and 'p' is the transversal intersecting them. If $\angle A = \angle E = 65°$, then find 1) $\angle B$, 2) $\angle C$, 3) $\angle G$, 4) $\angle H$.



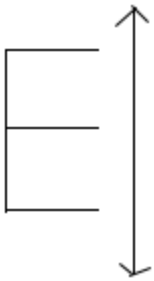
Section - B

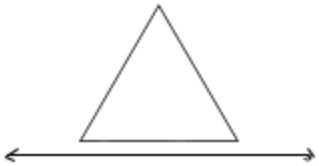
16.The side of a square is 25 m. and rectangle whose perimeter is equal to the perimeter of the square, has its length 30 m. Find the rations of the areas of the square and the rectangle.

17. a) In the following figures one part lying on one side of the line of symmetry is given. Complete the other part.

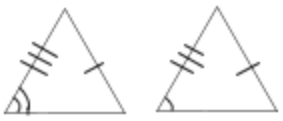


b) Find out images of the following figures about the line given.

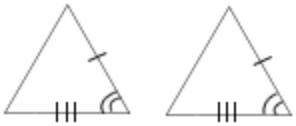




18. a)



b)



Two pairs of triangles are given above. Which pair of triangle are not congruent? Why?

IV. <u>Expressing in Mathematical language:</u> 4 X 4 = 16

Section - A

19. Show A ∩ B, B – A using Venn diagram.

20. Express the formula for interest (I) where principles (P), Time (T) and rate of interest (R).

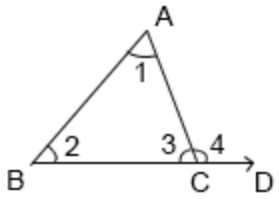
21. Write down the base and index of the following.

a) $10x^5$ b) $-8y^2$

Section – B

22. Write the $2x + 3y = 4$ in the form of $y = mx + c$.

23. Using the adjoining figure express relation between $\angle 1$, $\angle 2$ and $\angle 4$ in mathematical language.



24. Express relation between circumference of circle (C), area of circle (A) and radius of circle (r) (As formulae).