DEVAMATHA CMI PUBLIC SCHOOL

PRE MID TERM EXAMINATION - 2017-2018

Std. X

MATHEMATICS (041)

Time : 90 mins.
Marks : 40

General Instructions :

Answer the following questions with necessary steps :

SECTION A

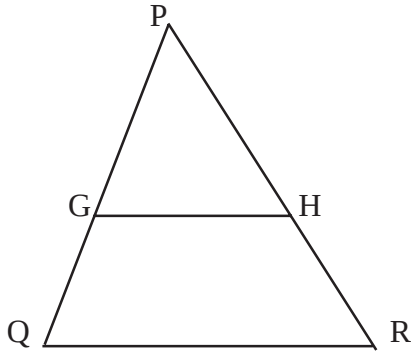
I Question number 1 to 3 carry 1 mark each:

1. If HCF (a,b)= 12 and a x b =1800, then find LCM (a, b) 1
2. If α and β are the roots of $ax^2 - bx + c = 0$ ($a \neq 0$), then calculate $\alpha + \beta$ 1
3. Sides of two similar triangles are in the ratio 4:9, Areas of these triangles are _____ in the ratio. 1

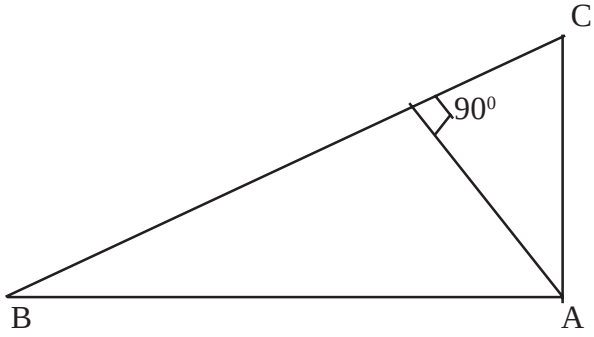
SECTION B

II. Question numbers 4 to 6 carry 2 marks each:

4. If the angles of a triangle are x,y and 40^0 and the difference between the two angles x and y is 30^0. Then find the values of x and y. 2
5. In the given figure 'G' is the mid point of side PQ of $\triangle$ PQR and GH $\parallel$ QR. Prove that '⊙' is the mid point of the side PR of the triangle PQR. 2



6. In the given figure if AD ⊥ BC then prove that $AB^2 + CD^2 = BD^2 + AC^2$

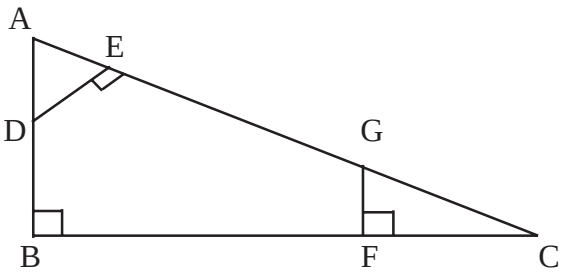


SECTION C

III. Question numbers 7 to 11 carry 3 marks each:

7. Check by division, whether x^2-2 is a factor of $x^4+x^3+x^2-2x-3$

8. In the given figure, if AB □ BC, DE □ AC and GF □ BC then prove that ⨯ADE $\frac{1}{28}$ ⨯GCF



9. If a line is drawn parallel to one side of a triangle to intersect the other two sides in the distinct points, prove that the other two sides are divided in the same ratio.

10. Find the missing frequency for the given frequency distribution table, If the mean of the distribution is 18.

Class interval	11-13	13-15	15-17	17-19	19-21	21-23	23-25
Frequency	3	6	9	13	F	5	4

11. If **Q** and **b** are the Zeroes of the polynomial $6y^2-7y+2$, find a quadratic polynomial whose zeroes are $\frac{1}{Q}$ and $\frac{1}{b}$ (5x3=15)

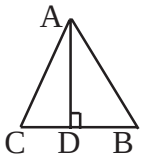
SECTION D

IV. Question numbers 12 to 15 carry 4 marks each: (4x4=16)

12. Prove that □ $\overline{7}$ is irrational, hence prove 6+ □$\overline{7}$ is irrational.

13. Solve the following graphically & state whether the equations are consistant or not, with reason. 4x-y=4 and 3x+2y=14.

14. The perpendicular from A on side BC of a ⨯ ABC intersect BC of D such that DB=3CD Prove that $2AB^2= 2AC^2+BC^2$



15. The following table gives the daily income of 50 workers of a factory.

Daily income	100-120	120-140	140-160	160-180	180-200
No. of workers	12	14	8	6	10

Find the mean and mode of the above data.

***