MATHS

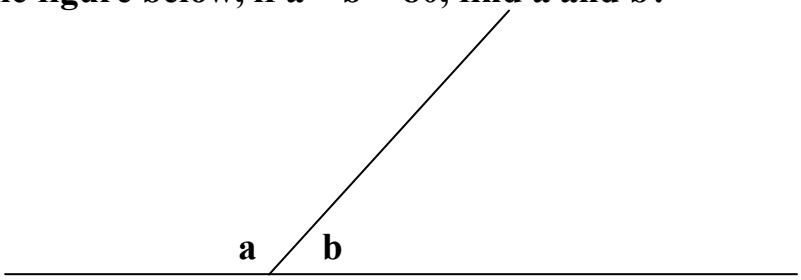
IX

SECTION A 3 MARKS EACH

1. **rationalize**

$$\frac{1}{1 + \sqrt{2} - \sqrt{3}}$$

2. **A sum of money amounts to 13230/- in one year and 13891.50 in one and a half year compounded annually. Find the sum and the rate?**
3. **The reduction in 25% of the price of the apples enables a person top buy 2 kg more for 240/-. Find the original and the reduced price?**
4. **In the figure below, if a – b = 80, find a and b?**



5. **If x ; y = 2:5, find 10x + 3y : 5x + 2y?**
6. **Factorize $x^3 + 3x^2 + 3x – 7$**
7. **If cos (40 + x) = sin 30, find x?**
8. **Find the perimeter and the area of the triangle whose sides are 13 cm, 14 cm and 15 cm?**
9. **A dealer buys the table listed at 1500/-. He gets the discounts of 20% and 10%. He spends 20/- on the transport. He sells it at the profit of 20%, find the selling price?**
10. **find at least three solutions for 2x – 3[y – 2] = 1**

SECTION B 4 MARKS EACH

11. **The price of sugar goes up by 20%, how much percent must the consumption be reduced so that the expenses remain the same?**
12. **Read the page of the pass book below.**

MONTH	DEPOSIT	WITHDRAWL	BALANCE
Jan 1			1500

Jan 5	**1000**		**2500**
Jan 20		**500**	**2000**
Feb 15	**1200**		**3200**
Feb 27		**700**	**2500**
May 8		**1000**	**1500**
May 15	**700**		**2200**
June 3	**1500**		**3700**
June 14	**700**		**4400**
Jne 28		**1200**	**3200**
Agu 12	**2000**		**5200**
Ag 30		**1300**	**3900**
Nov 1	**600**		**4500**
Nov 20	**1000**		**5500**
Dec 8		**1200**	**4300**
Dec 20	**2000**		**6300**

Find the interest if the rate till March 31 was 4.5% and after it was 5%?

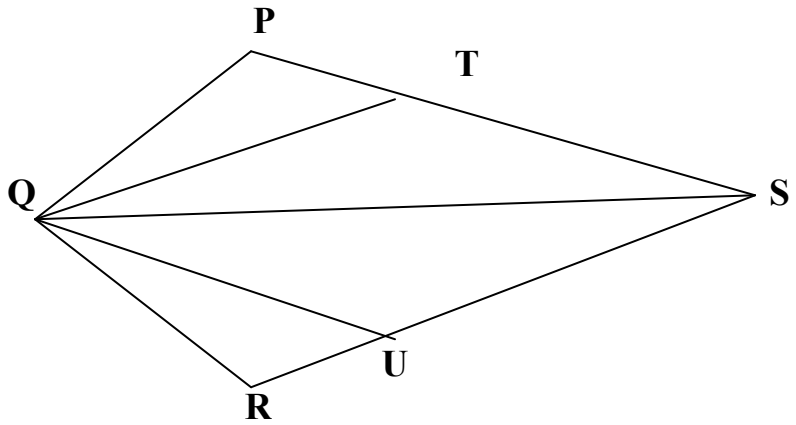
13.find $\frac{x + a}{x - a} + \frac{x + b}{x - b}$ **when** $x = \frac{2ab}{a + b}$

14.Show that $2(a^2 + b^2) = (a + b)^2$ **then a = b.**

15.In the triangle ABC if < C = 90 and tan A = $1/\sqrt{3}$ **then show that**

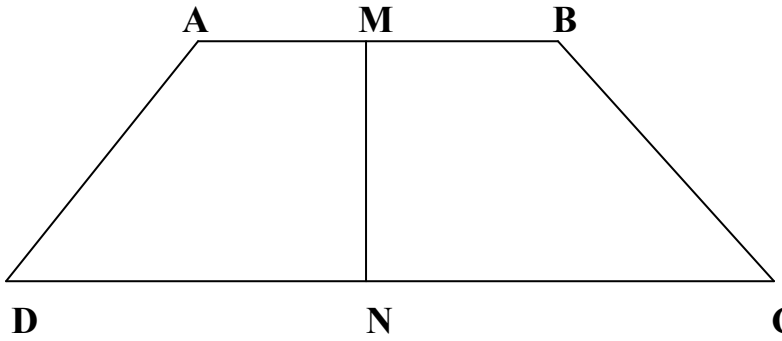
$$\text{Sin A cos B + cos A sin B = 1}$$

16.In the figure below, PQ = RQ, < PQT = < RQU < TQS = < UQS, prove that QT = QU.



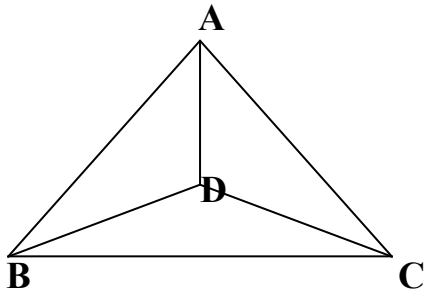
17.The minute hand of the clock is 10 cm. find the area swept by it from 9:00 am to 9 : 30 am?

18.In the figure below MN is perpendicular to DC and AB. Prove that AD = BC.



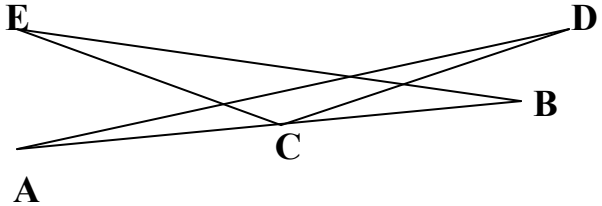
19. In a triangle the line segment joining the mid points of any two sides of a triangle is parallel to the third side and half of it.

20. In the figure AB = AC, < DBC =\ < DCB, prove that AD bisects < BAC.

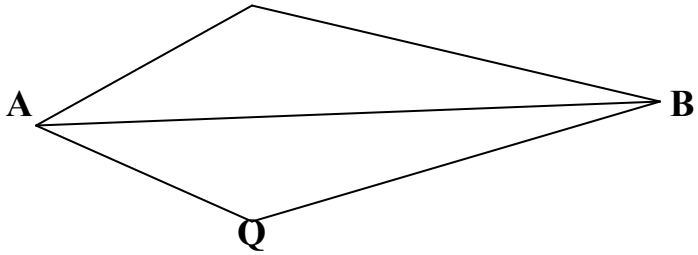


SECTION C 6 MARKS EACH

21. In the figure below, C is the mid point and < BAD = < CBE and < ECA = < DCB, prove that DA = EB.



22. In the figure below, AP = AQ, BP = BQ, prove that AB is the bisector of < PAQ and < PBQ.



23. Prove that the line joining the mid point of the hypotenuse to the opposite vertex of the right triangle is equal to the half of the hypotenuse.

24. For the following data draw the histogram and the frequency polygon.

MARKS	STUDENTS
0 – 10	5
10 – 20	10
20 – 30	8
30 – 40	5
40 – 50	2

25. In the figure below, AB = AC, AP = AQ, prove that PC = QB.