Maths Revision Test 5

Time : 60 mins

Max Marks : 40

Q1.

(a) If $x^2 + \frac{1}{x^2} = 18$ then find the value of $x - \frac{1}{x}$. 3 mark

(b) If x + y = 12 and xy = 32, Find the value of $x^2 + y^2$. 3 mark

Q2. Using factor theorem, factorize each of the following polynomials:

(i) $x^3 - 6x^2 + 3x + 10$
(ii) $27x^3 + y^3 + z^3 - 9xyz$.

6 marks

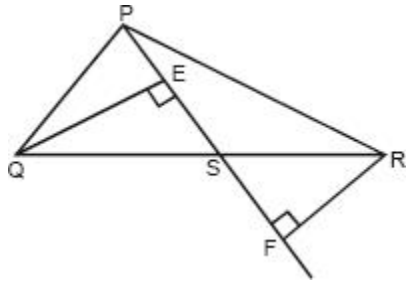
Q3. Determine

A) The angles of a triangle are arranged in ascending order of magnitude. If the difference between two consecutive angles is 10°, find all the three angles.

B) If two parallel lines are intersected by a transversal, prove that the bisectors of the two pairs of interior angles enclose a rectangle.

4 marks

Q4 In the given figure, PS is median produced upto F and QE and RF are perpendiculars drawn from Q and R, prove that QE = RF.

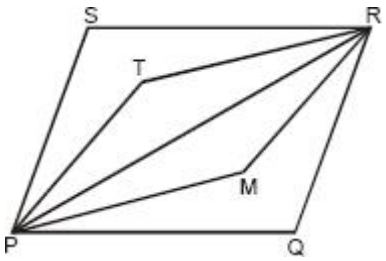


3 marks

Q5 In the given figure, T and M are two points inside a parallelogram PQRS such that PT = MR and PT || MR. Then prove that

(a) ΔPTR ≅ ΔRMP

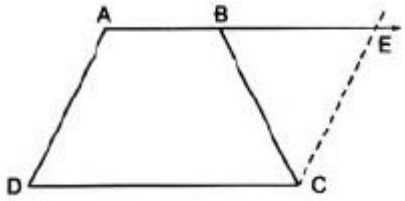
(b) RT || PM and RT = RM



3 marks

Q6. In a ΔABC, DE is parallel to BC and D is the mid-point of side AB. Find the perimeter of ΔABC when AE = 4.5 cm, DE = 5 cm and DB = 3.5 cm. 3 marks

Q7. ABCD is a trapezium in which AB II CD and AD = BC (see figure below).



Show that

(i) ∠A = ∠B

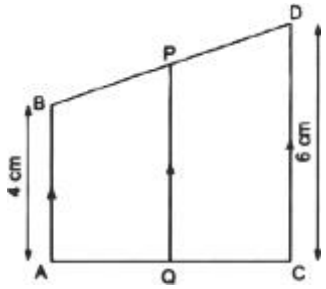
(ii) ∠C = ∠D

(iii) ∠ABC ≅ ∠BAD

(iv) Diagonal AC = Diagonal BD

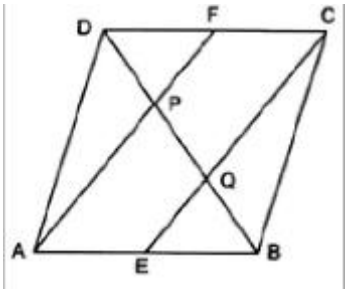
4 marks

Q8. In the adacent figure, AB || QP || CD, Q is the mid point of AC. If AB = 4 cm and CD = 6 cm then find PQ.



4 marks

Q9. In a parallelogram ABCD, E and F are the mid-points of sides AB and CD respectively (see figure). Show that the line segments AF and EC trisect the diagonal BD.



4 marks

Q 10. Evaluate the following products using algebraic identities.

(a) 993^3 (b) 1002^3

3 marks

Q 11. If $x + y + z = 0$, show that $x^3 + y^3 + z^3 = 3xyz$.

3 marks