

Maths Revision Test 6

Time : 60 mins

Max Marks : 40

Q1.

(a) If $3x + 2y = 12$ and $xy = 6$, find the value of $9x^2 + 4y^2$. 3 mark

(b) If $a + b + c = 15$ and $a^2 + b^2 + c^2 = 83$, find the value of $a^3 + b^3 + c^3 - 3abc$.
3 mark

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

- (i) $6ab - b^2 + 12ac - 2bc$
(ii) $(2a - b)^2 - 4(2a - b) - 13$
6 marks

Q3. Determine

- A) Prove that the angle formed by the bisector of interior angle A and the bisector of exterior angle B of a triangle ABC is half of angle C.
B) How many triangles can be drawn having its angles as 45° , 64° and 72° ? Give reason for your answer.

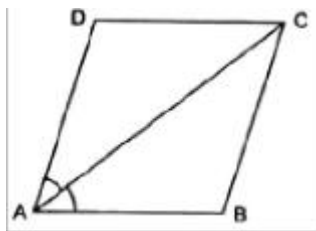
4 marks

Q4 The lengths of diagonals of a rhombus are 24 cm and 18 cm respectively. Find the length of each side of the rhombus

3 marks

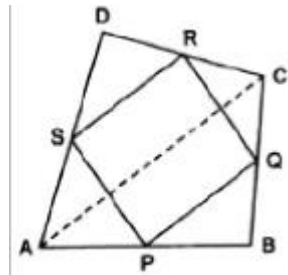
Q5 Diagonal AC of a parallelogram ABCD bisects $\angle A$ (see figure). Show that

- (i) it bisects $\angle C$ also,
(ii) ABCD is a rhombus.



3 marks

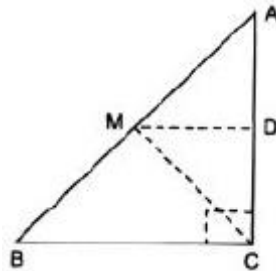
Q6. ABCD is a quadrilateral in which P, Q, R and S are mid-points of the sides AB, BC, CD and DA (see figure). AC is a diagonal. Show that.



- (i) $SR \parallel AC$ and $SR = \frac{1}{2} AC$
- (ii) $PQ = SR$
- (iii) PQRS is a parallelogram.

. 3 marks

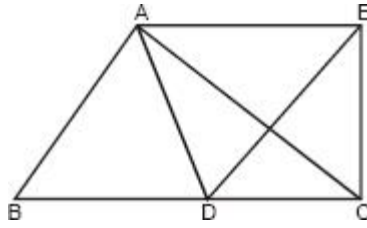
Q7. ABC is a triangle, right angled at C. A line through the mid-point M of hypotenuse AB and parallel to BC intersects AC at D. Show that



- (i) D is the mid-point of AC
- (ii) $MD \perp AC$
- (iii) $CM = MA = \frac{1}{2} AB$

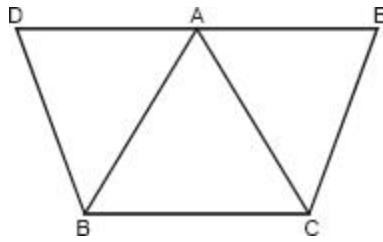
4 marks

Q8. In the given figure, $AB = AD$, $AC = AE$ and $\angle BAD = \angle EAC$, then prove that $BC = DE$.



4 marks

Q9. In the given figure, equilateral $\triangle ABD$ and $\triangle ACE$ are drawn on the sides of a $\triangle ABC$. Prove that $CD = BE$.



4 marks

Q 10 Prove that angles opposite to equal sides of an isosceles triangle are equal.

3 marks

Q 11. In $\triangle ABC$, $AB = AC$ and the bisector of angles B and C intersect at point O. Prove that $BO = CO$ and AO bisects $\angle BAC$.

3 marks