RD Sharma Solutions

Class 7

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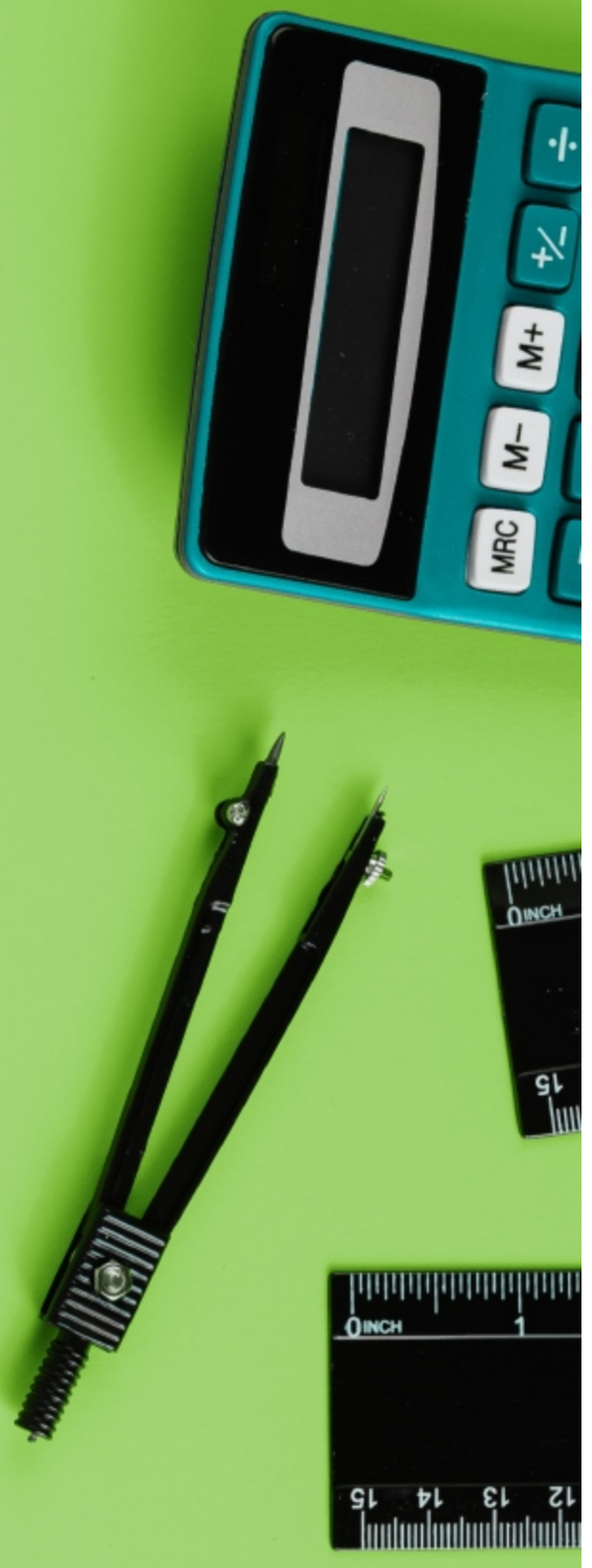


Chapter - 15

Properties of Triangles

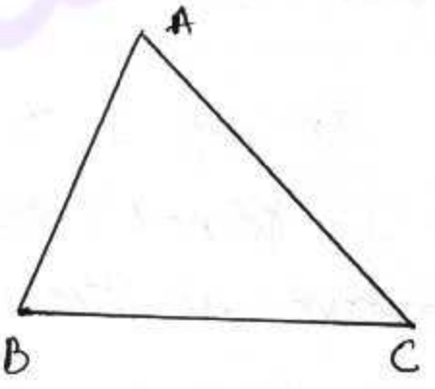
Exercise 15-1

Q.1 Take three non collinear points A, B and C on a page of your notebook. Join AB, BC and CA. What figure do you get? Name the triangle. Also name

(i) The side opposite to $\angle B$ (ii) The angle opposite to side AB

(iii) The vertex opposite to side BC

(iv) The side opposite to vertex B



Solution: By joining AB, BC and CA, we obtain a triangle ABC.

(i) The side opposite to $\angle B$ is AC.

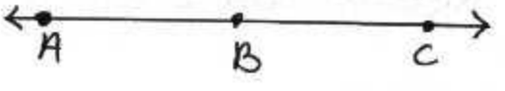
(ii) Angle opposite to side AB is $\angle C$

(iii) The vertex opposite to side BC is A.

(iv) The side opposite to vertex B is AC

Q.2 Take three collinear points A, B and C on a page of your notebook. Join AB, BC and CA. Is the figure a triangle? If not, why?

Solution



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No, figure is not a triangle. It is a straight line as all three points lie on a line.

Q.3 Distinguish between triangle and its triangular region?

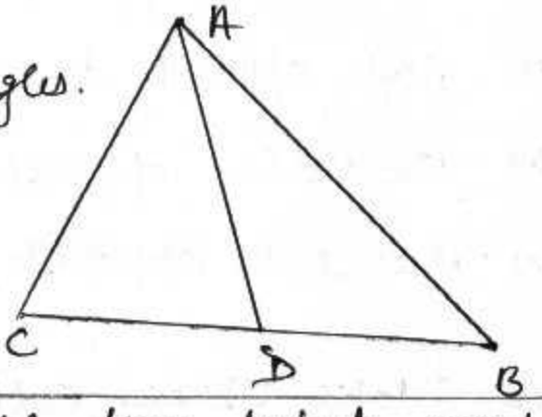
Solution: Triangle: A plane figure formed by three non parallel line segment.

Triangular region: The interior of ΔABC together with the ΔABC itself, is called the triangular region ABC.

Q.4 In fig. 9, D is a point on side BC of a ΔABC AD is joined. Name all the triangles that you can observe in the figure. How many are they.

Solution: There are total 3 triangles.

ΔABC, ΔACD, ΔABD



Q.5 In fig. A, B, C and D are four points and no three points are collinear. AC and BD intersect at O. There are eight triangles that you can observe. Name all the triangles.

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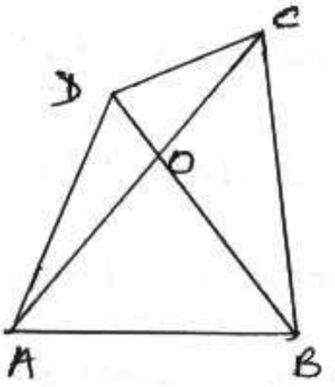
Solution



ΔAOB, ΔBOC, ΔCOD, ΔAOD

ΔABD, ΔBCD, ΔABC, ΔACD

Q.6 What is the difference between a triangle and triangular region.

Sol: Already done in Q.3.

Q7 Explain the following terms:

(i) Triangle (ii) Parts or elements of a triangle

(iii) Scalene triangle (iv) Isosceles triangle

(v) Equilateral triangle (vi) Acute triangle

(vii) Right triangle (viii) Obtuse triangle

(ix) Interior of a triangle (x) Exterior of a triangle.

Solution (i) Triangle: A plane figure formed by three non parallel line segments is called triangle.

(ii) Parts or elements of triangle: The three sides and three angles of triangle are together called the six parts or elements of ΔABC.

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(iii) Scalene triangle: A Triangle whose no two sides are equal.

(iv) Isosceles triangle: A Triangle in which any two sides are equal.

(v) Equilateral triangle: A triangle in which all three sides are equal.

(vi) Acute triangle: A triangle in which all three angle are acute is called acute triangle.

(vii) Right triangle: A Triangle in which one angle is right angle is called right triangle.

(viii) obtuse triangle: A triangle whose one angle is obtuse is called obtuse angled triangle.

(ix) Interior of triangle: The part made up by all such points which are enclosed by ΔABC is called the interior of ΔABC

(x) Exterior of A triangle: The part made up by all such points which are not enclosed by ΔABC.

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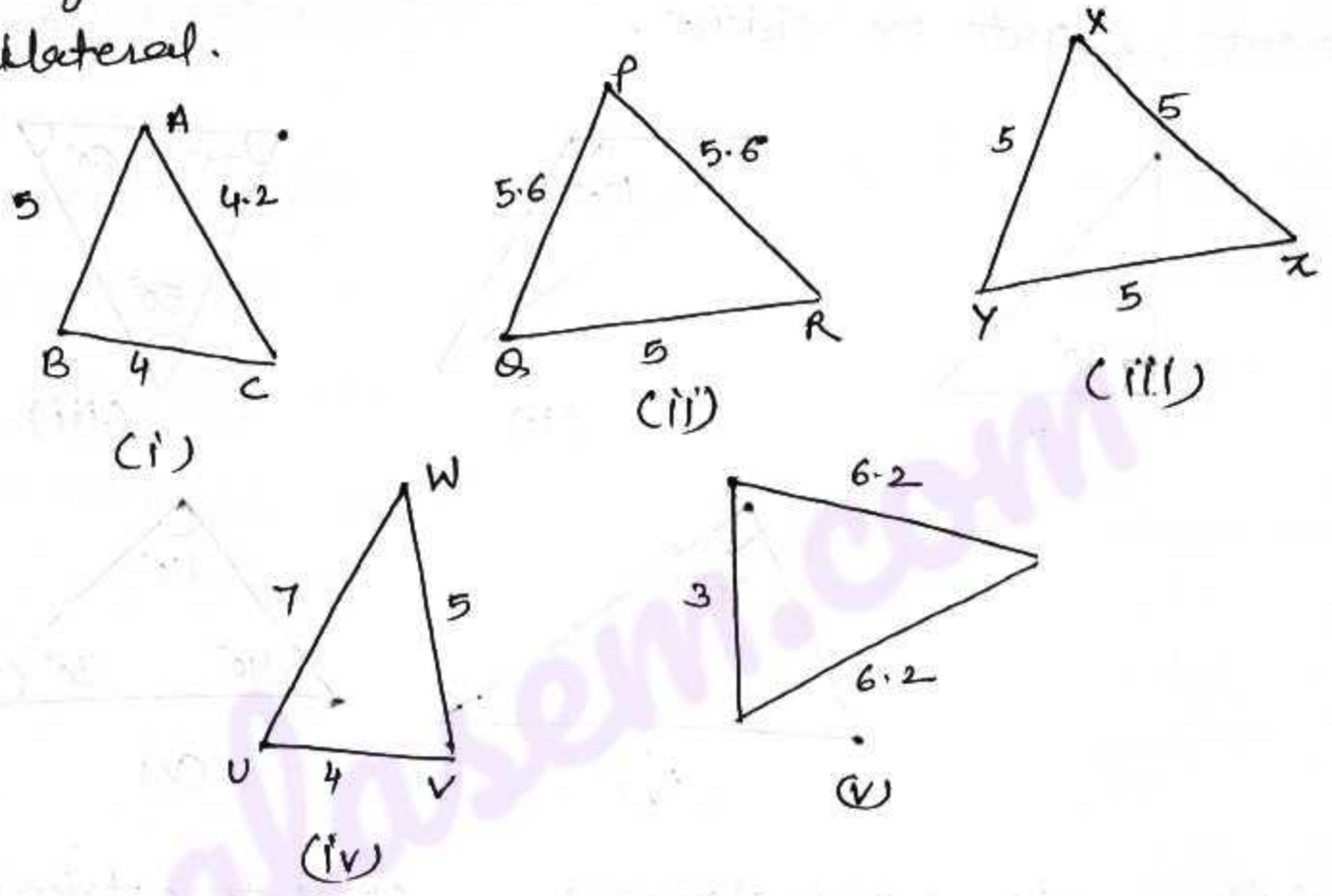
Q.8 In fig. 11, the length (in cm) of each side has been indicated along the side. State for each triangle whether it is scalene, isosceles or equilateral.



Solution: (i) Scalene triangle

(ii) Isosceles triangle

(iii) Equilateral triangle

(iv) Scalene triangle

(v) Isosceles triangle.

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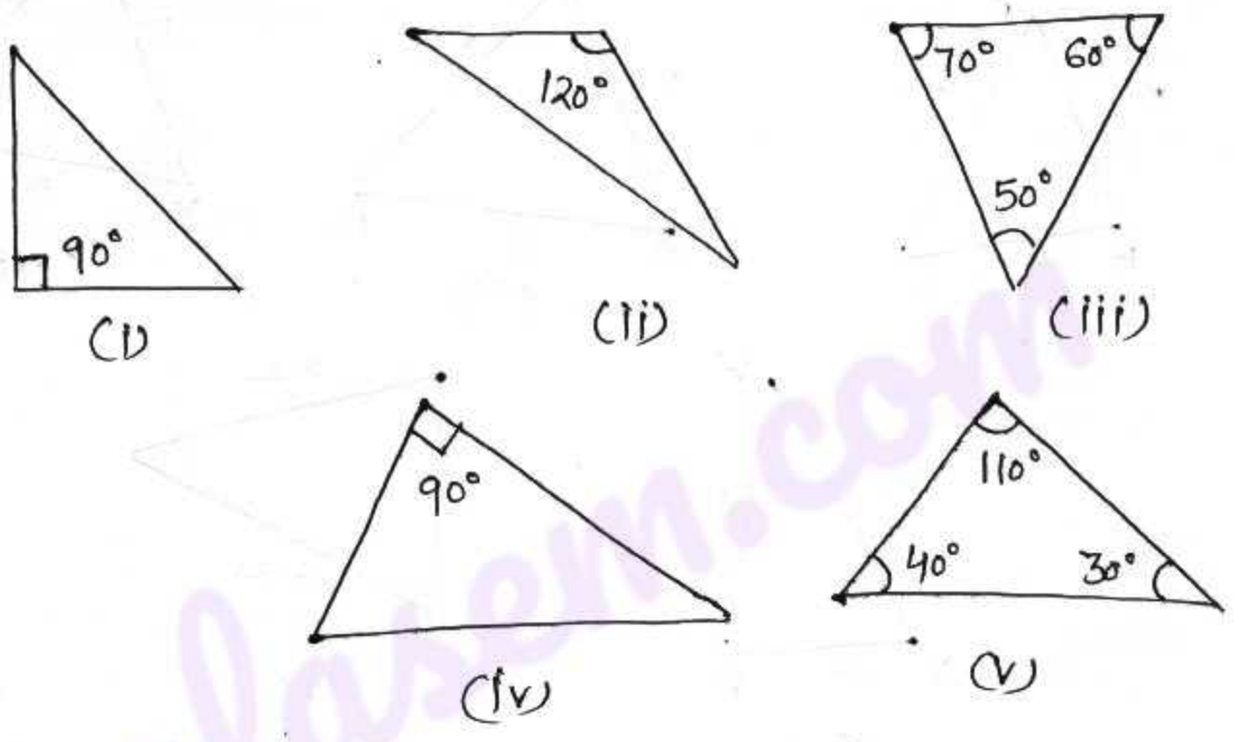
Q9 In fig. 12, there are five triangles. The measures of some of their angles have been indicated. State for each triangle whether it is acute, right or obtuse.



Solution: (i) right triangle (ii) obtuse triangle.

(iii) Acute triangle (iv) right triangle

(v) Obtuse triangle.

Q.10 Fill in the blanks with the correct word/symbol to make it a true statement.

(i) A triangle has ..... sides.

(ii) A triangle has ..... vertices.

(iii) A triangle has ..... angles.

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(iv) A triangle has ----- parts.

(v) A triangle whose no two sides are equal is known as -----.

(vi) A triangle whose two sides are equal is known as -----

(vii) A triangle whose all the sides are equal is known as ----

(viii) A triangle whose one angle is a right angle is known as ----

(ix) A triangle whose all the angles are of measure less than 90° is known as -----

(x) A triangle whose one angle is more than 90° is known as -----

Solution: (i) Three (ii) Three (iii) Three

(iv) Six (v) Scalene (vi) Isosceles (vii) equilateral

(viii) Right triangle (ix) Acute triangle (x) obtuse triangle

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Q.11 In each of the following, state if the statement is true (T) or false (F).

(i) A Triangle has three sides.

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(ii) A triangle may have four vertices.

(iii) Any three line segments make up a triangle.

(iv) The interior of triangle include its vertices.

(v) The triangular region includes the vertices of the corresponding triangle.

(vi) The vertices of a triangle are three collinear points

(vii) An equilateral triangle is isosceles also.

(viii) Every right triangle is scalene.

(ix) Each acute triangle is equilateral.

(x) No isosceles triangle is obtuse.

<u>Solution</u>: (i) True (ii) False (iii) False

(iv) False (v) True (vi) False (vii) True

(viii) False (ix) False (x) False.

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