

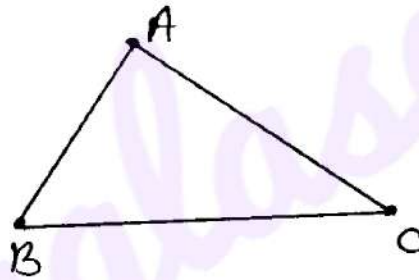
Chapter-12 - Triangles

Exercise 12.1

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:

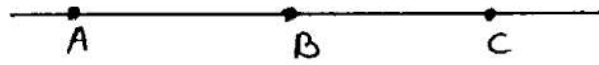


Thus $\triangle ABC$ is obtained.

- (i) Side opposite to angle B = AC
- (ii) The angle opposite to side AB = $\angle C$
- (iii) The vertex opposite to side BC = A
- (iv) The side opposite to vertex B = 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



No, figure is not a triangle. as three collinear points can not form a triangle.

Q.3 Distinguish between a triangle and its triangular region.

Solution: Triangle: Triangle is a plane figure which is formed by three line segments.

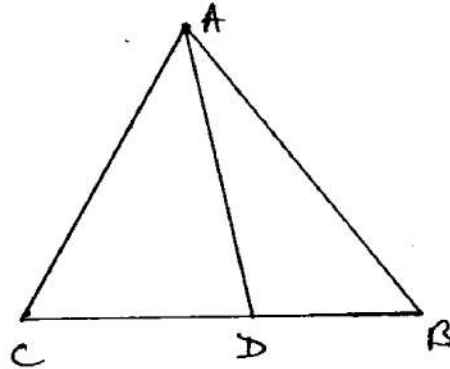
Whereas, 'triangular region' is the region which is inside a triangle.

Q.4 In fig 12.11, D is a point on side BC of $\triangle ABC$. AD is joined. Name all the triangles that you can observe in the figure. How many are they.

Solution: Triangles are.

$\triangle ACD$, $\triangle ADB$, $\triangle ACB$

• Thus, total 3 triangles are they.

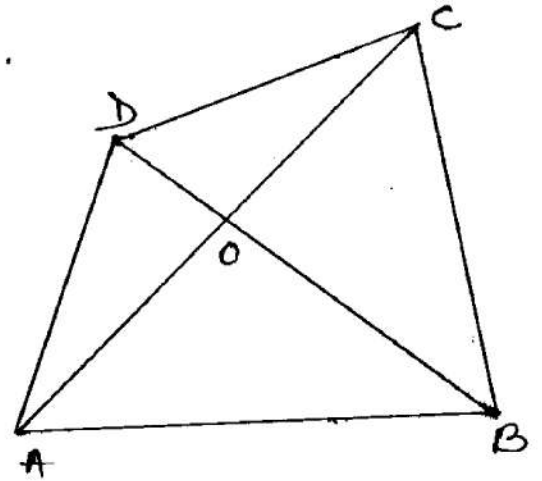


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Q.5 In fig 12.12, A, B, C and D are four points, and no three points are collinear. AC and BD intersect at O. There are eight triangles that you observe. Name all the triangles.

Solution:

$\triangle ABC$, $\triangle ABD$, $\triangle ABO$, $\triangle BCO$
 $\triangle DCO$, $\triangle AOD$, $\triangle ACD$, $\triangle BCD$



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

Solution: same as Q.3

Q.7 Explain the following terms

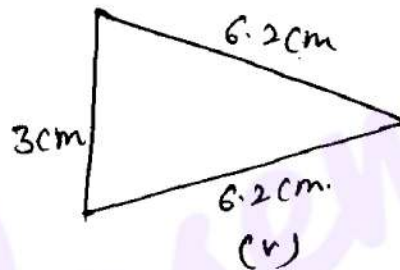
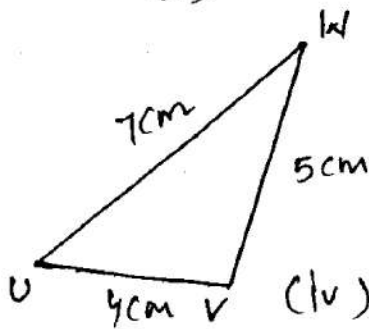
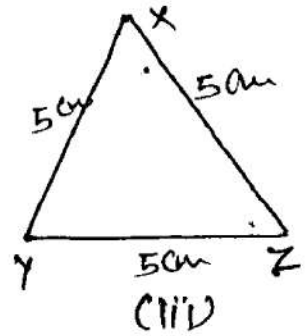
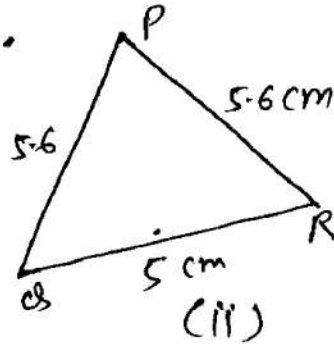
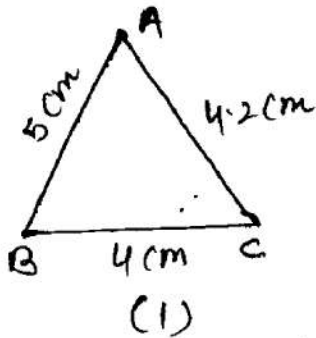
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|---------------------------|--------------------------------------|
| (i) Triangle | (iv) Parts or elements of a triangle |
| (iii) Scalene triangle | (v) Isosceles triangle |
| (v) Equilateral triangle | (vi) Acute triangle |
| (vii) Right triangle | (viii) Obtuse triangle |
| (ix) Interior of triangle | |

Solution: (i) Triangle: A triangle is a closed region by three line segments.

- (ii) Parts or elements of a triangle: - The three sides, three angles and three vertices
- (iii) Scalene triangle: A Triangle in which all sides are different in measure.
- (iv) Isosceles triangle: A Triangle in which two sides are equal.
- (v) Equilateral triangle: A Triangle whose all sides are equal.
- (vi) Acute triangle: A triangle whose all angles are acute angle.
- (vii) Right triangle: A triangle in which one angle is right angle.
- (viii) Obtuse triangle: A triangle in which one angle is obtuse.
- (ix) Interior of triangle: The region which lies inside the triangle.
- (x) Exterior of triangle: The region which lies outside the triangle.

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Q.8 In fig 12.13, 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, as all sides are unequal

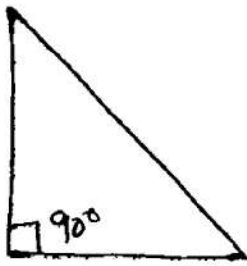
(II) Isosceles triangle, as two sides are equal

(III) Equilateral triangle, as all sides are equal

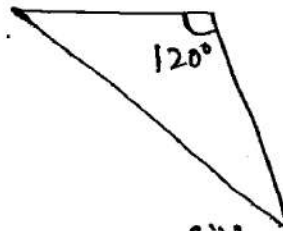
(IV) Scalene triangle, as all sides are unequal.

(V) Isosceles triangle, as two sides are equal.

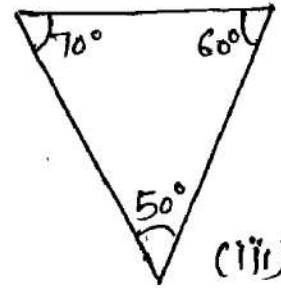
Q.9 In fig 12.14, there are five triangles. The Measure of some of their angles have been indicated. State for each triangle whether it is acute, right or obtuse.



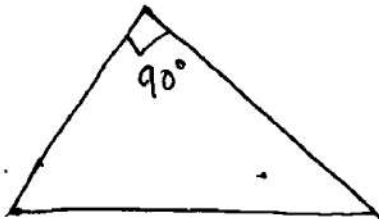
(i)



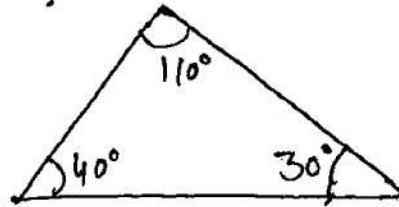
(ii)



(iii)



(iv)



(v)

Solution: (i) Right triangle (ii) obtuse angled triangle
 (iii) Acute angled triangle (iv) Right triangle
 (v) obtuse angled triangle.

Q10 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.
- (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 _____.

(vii) A triangle whose one angle is 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 (ix) Acute triangle

(x) Obtuse triangle.

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

(i) A triangle has three sides.

(ii) A triangle may have four vertices.

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

(iv) The interior of a 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.

(ix) Each acute triangle is equilateral.

(x) No isosceles triangle is obtuse.

Solution : (i) True (ii) False (iii) False.
 (iv) False (v) True (vi) False (vii) True
 (viii) False (ix) False (x) False.

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