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(Affiliated to CBSE up to +2 Level)

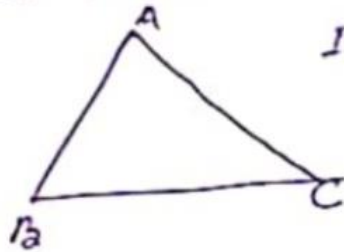
CLASS: VII

SUB.: MATHS (NCERT BASED)

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Some important points in triangle.

- (1) Sum of any two sides of a triangle is greater than their third side.



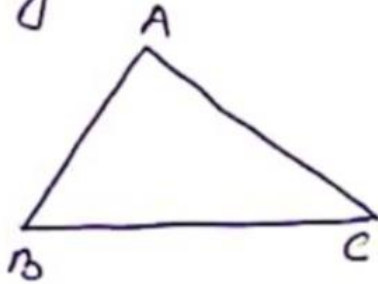
In $\triangle ABC$,

$$AB + BC > AC$$

$$BC + AC > AB$$

$$AB + AC > BC$$

- (2) ~~Sum~~ The difference of any two sides of a triangle is less than their third side.

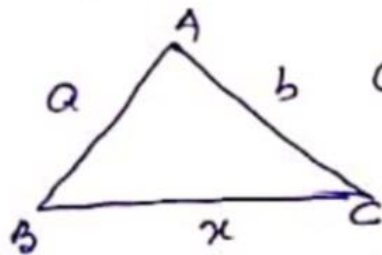


$$AB - BC < AC$$

$$BC - AC < AB$$

$$AB - AC < BC$$

- (3.) If length of two sides are given in a triangle

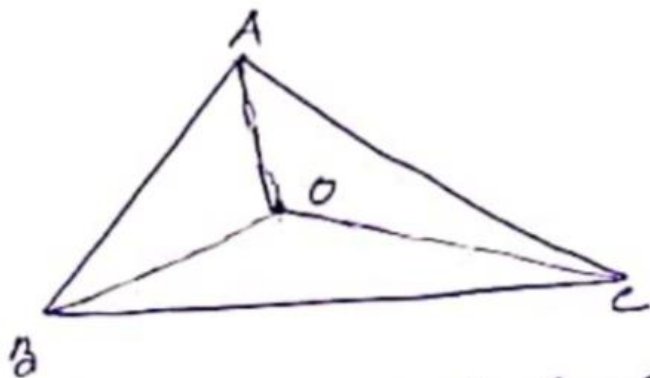


$$a - b < x < a + b$$

The value of x is lie between

$a - b$ and $a + b$.

Q In $\triangle ABC$, O is interior point. Then show that $OA + OB + OC > \frac{1}{2}(AB + BC + AC)$



Proof We know that sum of any two sides of a triangle is ~~that~~ greater than their third side.

In $\triangle ABO$.

$$OA + OB > AB \quad \text{--- (i)}$$

In $\triangle BOC$,

$$OB + OC > BC \quad \text{--- (ii)}$$

In $\triangle AOC$

$$OA + OC > AC \quad \text{--- (iii)}$$

Adding (i), (ii) and (iii)

$$OA + OB + OB + OC + OA + OC > AB + BC + AC$$

$$2(OA + OB + OC) > AB + BC + AC$$

$$\therefore OA + OB + OC > \frac{1}{2}(AB + BC + AC)$$

Proved