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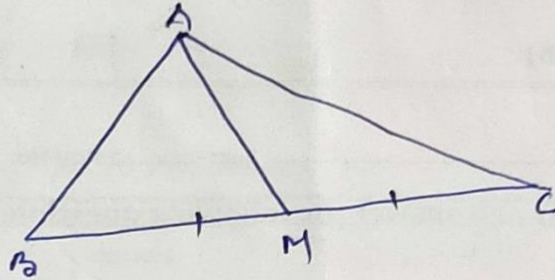
(Affiliated to CBSE up to +2 Level)

CLASS: VII

SUB.: MATHS (NCERT BASED)

DATE: 08-09-2020

Q. AM is a median of $\triangle ABC$, Prove that
 $AB + BC + AC > 2AM$



Proof :- We know that
Sum of any two sides of a triangle is
Greater than their side.

In $\triangle ABM$,
 $AB + BM > AM$ — (i)

In $\triangle AMC$
 $AC + MC > AM$ — (ii)

Adding eqn (i) and (ii)

$$AB + BM + AC + MC > AM + AM$$

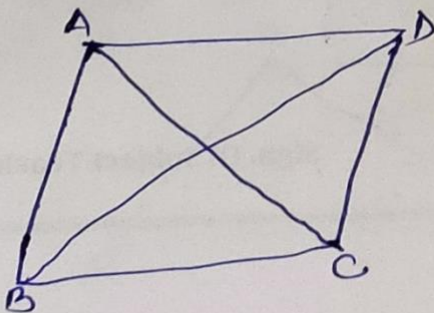
$$\text{Thus } AB + AC + (BM + MC) > 2AM$$

$$\therefore AB + AC + BC > 2AM$$

Proved.

(4) ABCD is a quad. then Show that

$$AB + BC + AD + CD > AC + BD.$$



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

In $\triangle ABC$,

$$AB + BC > AC \text{ --- (i)}$$

In $\triangle ADC$

$$AD + DC > AC \text{ --- (ii)}$$

In $\triangle ABD$

$$AB + AD > BD \text{ --- (iii)}$$

In $\triangle BCD$

$$BC + CD > BD \text{ --- (iv)}$$

Adding eqn (i) ~~and~~ (ii), (iii) and (iv)

$$2AB + 2BC + 2AD + 2CD > 2AC + 2BD$$

$$\Rightarrow 2(AB + BC + CD + AD) > 2(AC + BD)$$

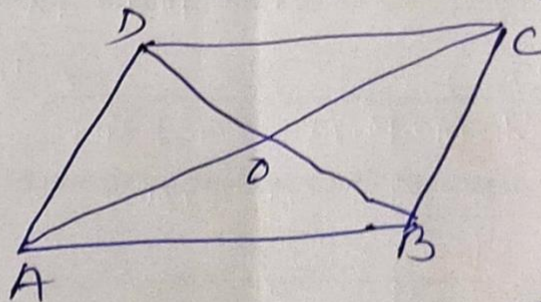
$$\therefore AB + BC + CD + AD > AC + BD$$

Proved

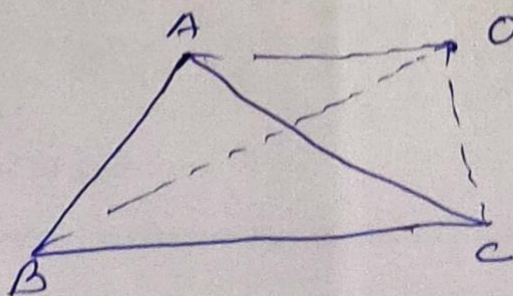
Do your self

(i) ABCD is a quad. then prove that-

$$AB + BC + CD + DA < 2(AC + BD)$$



(ii) O is an exterior point of $\triangle ABC$. Show that



$$OA + OB + OC > \frac{1}{2} (\text{Perim of } \triangle ABC)$$

