1. Why is it better to use a divider and a ruler than a ruler only, while measuring the length of a line segment?

Solution:-

It is better to use a divider than a ruler, because the thickness of the ruler may cause difficulties in reading off her length. However, divider gives up accurate measurement.

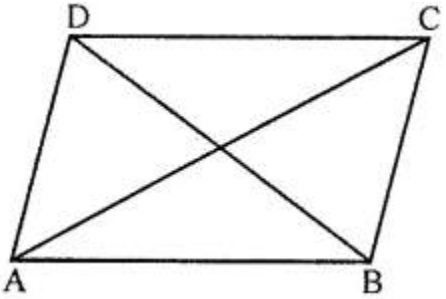
2. In the given figure, compare the line segments with the help of a divider and fill in the blanks by using the symbol >, = or <:

(i) AB ……. CD

(ii) BC ……. AB

(iii) AC ……. BD

(iv) CD ……. BD



Solution:-

(i) From the figure,

AB = CD … [in parallelograms opposites are equal]

(ii) BC < AB

(iii) AC > BD

(iv) CD < BD

3. If A, B and C are collinear points such that AB = 6 cm, BC = 4 cm and AC = 10 cm, which one of them lies between the other two?

Solution:-

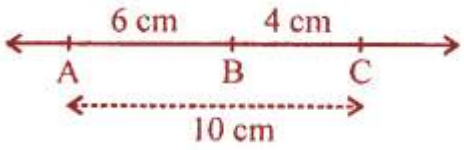
From the question it is given that,

A, B and C are collinear points

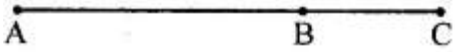
AB = 6 cm

BC = 4 cm

AC = 10 cm



4. In the given figure, verify the following by measurement:
(i) AB + BC = AC
(ii) AC – BC = AB



Solution:-
From the figure,
By using the divider and ruler we measured the given figure,
So,
AB = 3 cm, BC = 1.5 cm and AC = 4.5 cm
(i) AB + BC = AC
3 cm + 1.5 cm = 4.5 cm
4.5 cm = 4.5 cm
(ii) AC – BC = AB
4.5 cm – 5 cm = 3 cm
3 cm = 3 cm

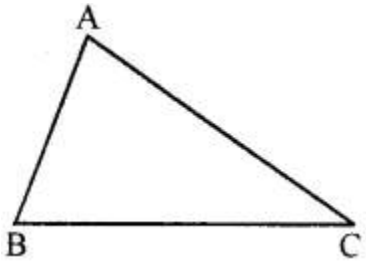
5. In the given figure, verify by measurement that:
(i) AC + BD = AD + BC
(ii) AB + CD = AD – BC

Solution:-
From the figure,
By using the divider and ruler we measured the given figure,
So,
AB = 1.8 cm, BC = 0.8 cm, BD = 2.7 cm CD = 1.9 cm, AC = 2.6 cm and AD = 4.5 cm
(i) AC + BD = AD + BC
Consider Left hand side (LHS) = AC + BD
=2.6 cm + 2.7 cm
=5.3 cm
Now, Right hand side (RHS) = AD + BC
= 4.5 cm + 0.8 cm
= 5.3 cm
By comparing LHS and RHS
LHS = RHS
5.3 cm = 5.3 cm

Therefore, AC + BD = AD + BC

(ii) AB + CD = AD – BC
Consider Left hand side (LHS) = AB + CD
=1.8 cm + 1.9 cm
= 3.7 cm
Now, Right hand side (RHS) = AD - BC
= 4.5 cm - 0.8 cm
= 3.7 cm
By comparing LHS and RHS
LHS = RHS
3.7 cm = 3.7 cm
Therefore, AC + BD = AD + BC

6. In the given figure, measure the lengths of the sides of the triangle ABC and verify:
(i) AB + BC > AC
(ii) BC + AC > AB
(iii) AC + AB > BC



Solution:-
From the figure,
By using the divider and ruler we measured the given figure,
So,
AB = 2.6 cm, BC = 3.9 cm, AC = 4 cm
(i) AB + BC > AC
2.6 + 3.9 cm > 4 cm
6.5 cm > 4 cm
(ii) BC + AC > AB
3.9 + 4 cm > 2.6 cm
7.9 cm > 2.6 cm
(iii) AC + AB > BC
4 cm + 2.6 cm > 3.9 cm

6.6 cm > 3.9 cm