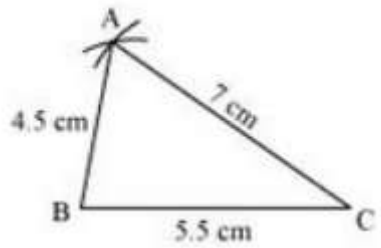
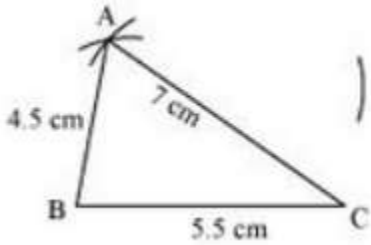
Practical Geometry - Exercise 4.1

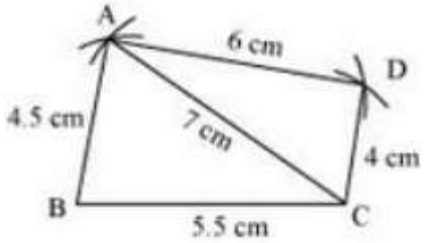
Q.1 Construct the following quadrilaterals.
(i) Quadrilateral ABCD.
AB = 4.5 cm
BC = 5.5 cm
CD = 4 cm
AD = 6 cm
AC = 7 cm
***Sol.* Steps for Construction:**
Step 1: Firstly, draw the line segment BC of length 5.5 cm with help of pencil and ruler.
Step 2: Now, take B as a center and mark an arc of radius 4.5 cm.
Step 3: Also, take C as a center and mark the arc of radius 7 cm which intersect the previous arc at point A.
Step 4: Now, join AB and AC



Step 5: Take A as center and mark an arc of radius 6 cm on the opposite side of point B.



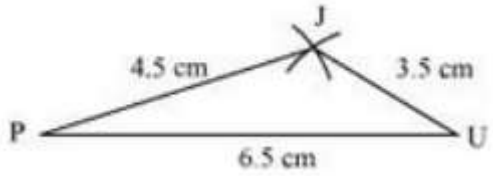
Step 6: Now, take C as center and mark an arc of radius 4 cm which intersects the arc drawn in the above step at point D.
Step 7: Join points A and C to D.



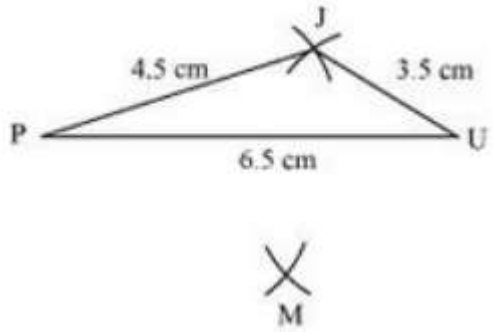
Thus, ABCD is the required quadrilateral.

(ii) Quadrilateral JUMP
JU = 3.5 cm
UM = 4 cm
MP = 5 cm
PJ = 4.5 cm
PU = 6.5 cm
***Sol.* Steps for Construction:**
Step 1: Firstly, draw a line segment PU of length 6.5 cm with help of pencil and ruler.
Step 2: Now, take P as a center and mark an arc of radius 4.5 cm.
Step 3: And take U as center and mark an arc of radius 3.5 cm which intersect the previous arc at point J.

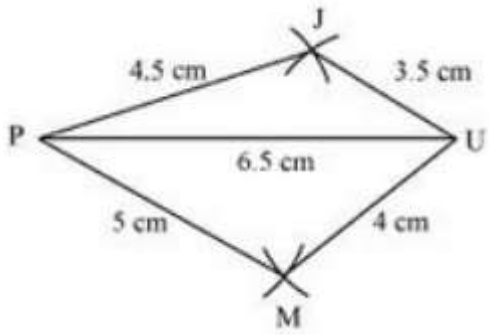
Step 4: Now join PJ and JU.



Step 5: Take P as a centre and mark an arc of radius 5 cm on the opposite side of point J.
Step 6: Now, mark another arc by keeping centre as U of radius 4 cm which intersects the previous drawn arc at point M.

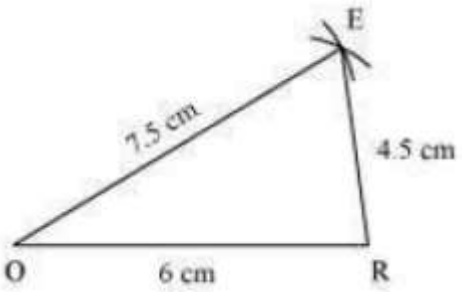


Step 7: Join points PM and UM.

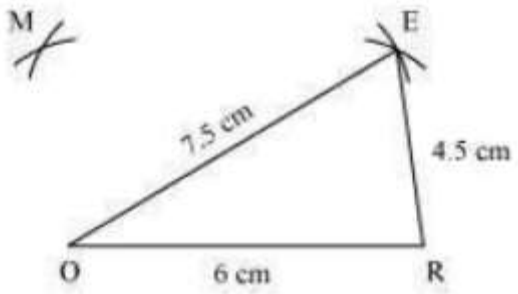


Thus, JUMP is the required quadrilateral.

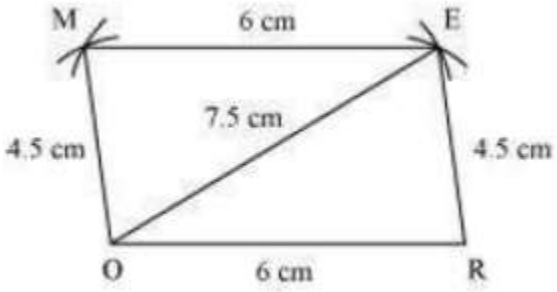
(iii) Parallelogram MORE
OR = 6 cm
RE = 4.5 cm
EO = 7.5 cm
***Sol.* Steps for Construction:**
Step 1: Firstly, draw the line segment OR of length 6cm with help of pencil and ruler.
Step 2: Now, take O as a center and mark an arc of radius 7.5 cm.
Step 3: and take R as a center and mark an arc of radius 4.5 cm which intersects the previous arc at point E.
Step 4: Join OE and ER.



Step 5: Now, take the points O and E as centres and mark the arcs of radius 4.5 cm and 6 cm respectively. These two arcs must intersect each other at point M.

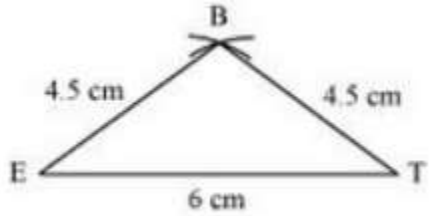


Step 6: Join OM and EM.

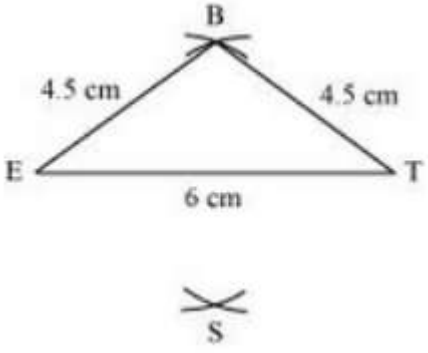


Thus, MORE is the require parallelogram.

(iv) Rhombus BEST
BE = 4.5 cm
ET = 6 cm
***Sol.* Steps for Construction:**
Step 1: Firstly, draw the line segment ET of length 6cm with help of pencil and ruler.
Step 2: Take the points E and T as centres and mark the arcs of radius 4.5 cm same side of the line segment ET. Both the arcs intersect each other at point B.
Step 3: Join EB and BT.



Step 4: Now take again points E and T as centres and draw arcs of radius 4.5 cm on the opposite side of point B. Both the arcs intersect each other at point S.



Step 5: Join ES and TS.
Thus BEST is the required rhombus.