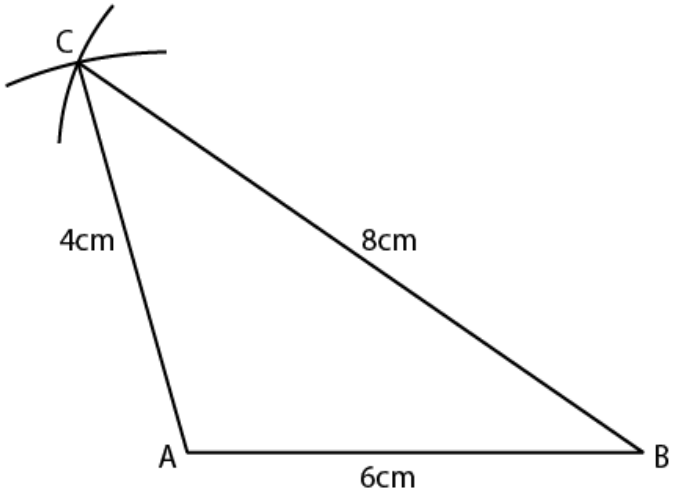
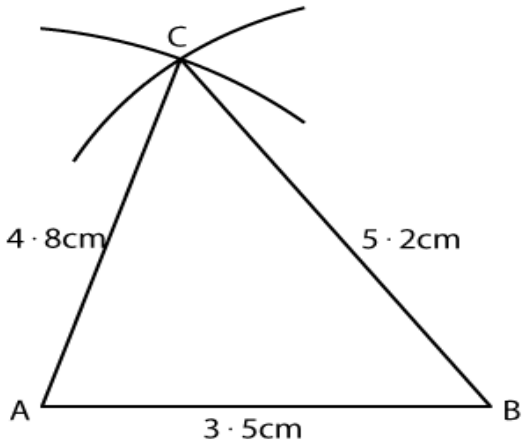
Exercise 26(B)

1. Construct triangle ABC, when:
AB = 6 cm, BC = 8 cm and AC = 4 cm
Solution:



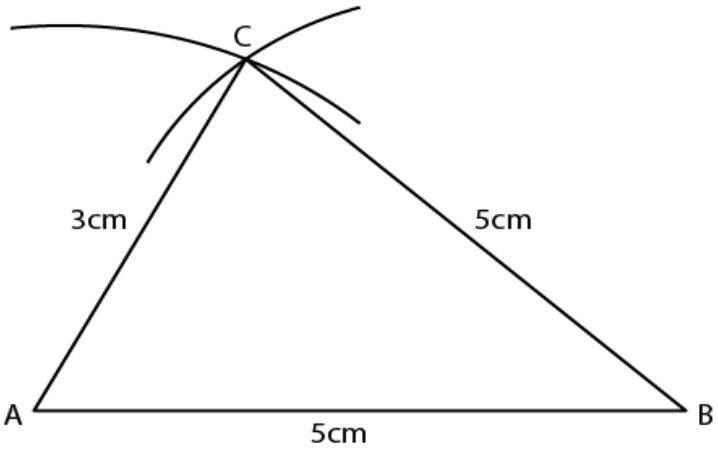
Given
AB = 6 cm
BC = 8 cm
AC = 4 cm
Now,
Steps of Construction:
(i) Draw a line AB of length 6 cm
(ii) Using compasses, take B as centre, and draw an arc of 8 cm radius
(iii) Again, taking A as centre, draw another arc of 4 cm radius, which cuts the previous arc at point C
(iv) Now join AC and BC
The obtained triangle ABC is the required triangle.

2. AB = 3.5 cm, AC = 4.8 cm and BC = 5.2 cm
Solution:



Given
AB = 3.5 cm
AC = 4.8 cm
BC = 5.2 cm
Steps of Construction:
(i) Draw a line AB of length 3.5 cm
(ii) With the help of compasses, taking B as centre, draw an arc of 5.2 cm radius
(iii) Again with A as centre, draw an arc of 4.8 radius
(iv) Now, join AC and BC

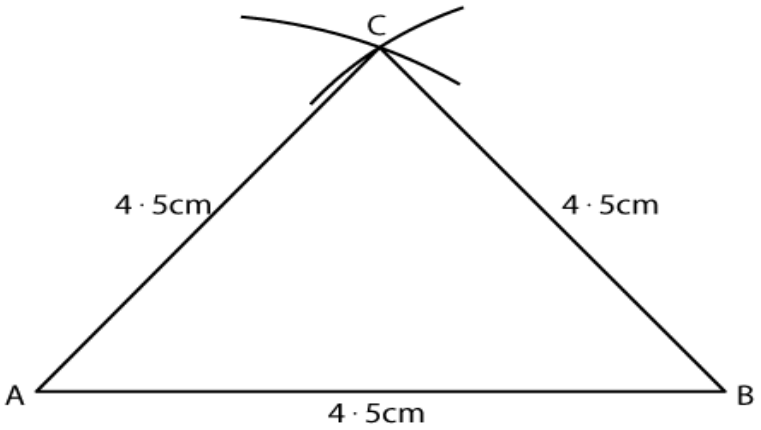
3. AB = BC = 5 cm and AC = 3 cm. Measure angles A and C. Is ∠A = ∠C?
Solution:



Given
AB = BC = 5 cm
AC = 3 cm
Steps of Construction:
(i) Draw a line AB of length 5 cm
(ii) Using compasses take B as centre and draw an arc of 5 cm radius

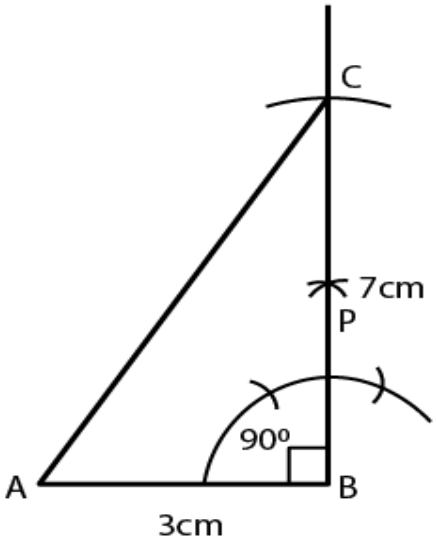
(iii) Now, taking A as centre, draw another arc of 3 cm radius, which cuts the previous arc at point C
(iv) Now, join AC and BC

4. AB = BC = CA = 4.5 cm. Measure all the angles of the triangle. Are they equal?
Solution:



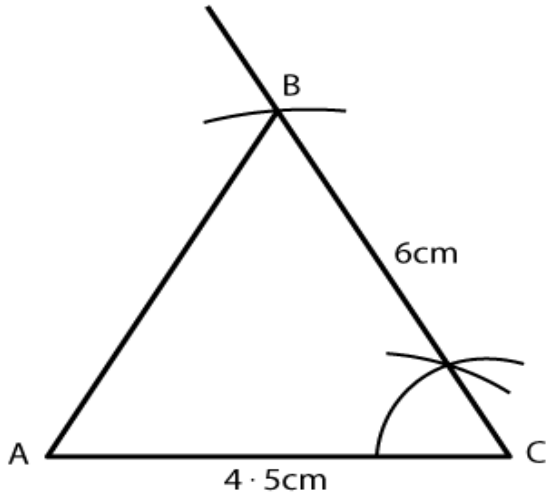
Given
AB = BC = CA = 4.5 cm
Steps of Construction:
(i) Draw a line AB of length 4.5 cm
(ii) Using compasses and taking BC as centre, draw an arc of 4.5 cm radius
(iii) Again taking AC as centre, draw another arc of 4.5 cm radius, which cuts the previous arc at point C
(iv) Now, join AC and BC
(v) All the angles in ABC i.e $\angle A = \angle B = \angle C = 60^0$
Since AB = BC = CA = 4.5 cm and all the angles are equal. Hence, it is an equilateral triangle

5. AB = 3 cm, BC = 7 cm and $\angle B = 90^0$
Solution:



Given
AB = 3 cm,
BC = 7 cm and
$\angle B = 90^0$
Steps of Construction:
(i) Draw a line segment AB of length 3 cm
(ii) Using compasses, construct $\angle ABC = 90^0$
(iii) Taking B as centre, draw an arc of 7 cm length and mark as point C i.e BC = 7 cm
(iv) Now, join A and C
(v) The obtained $\triangle ABC$, is the required triangle

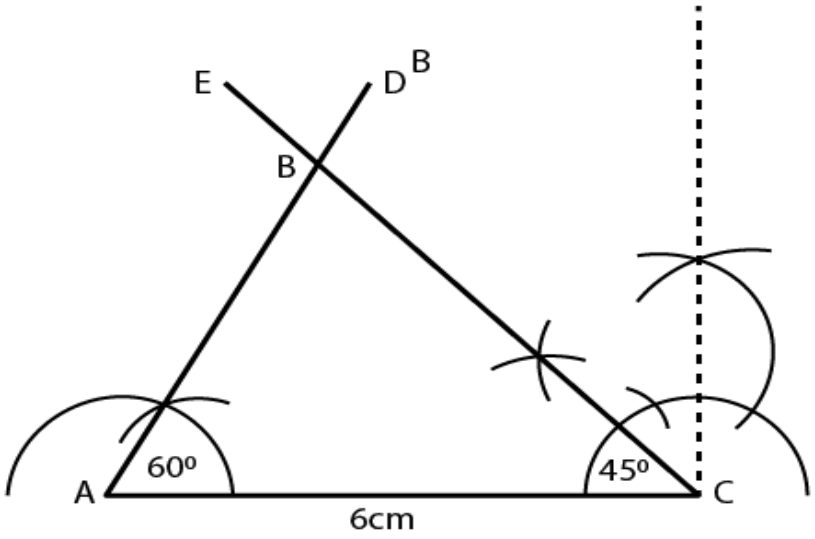
6. AC = 4.5 cm, BC = 6 cm and $\angle C = 60^0$
Solution:



Given

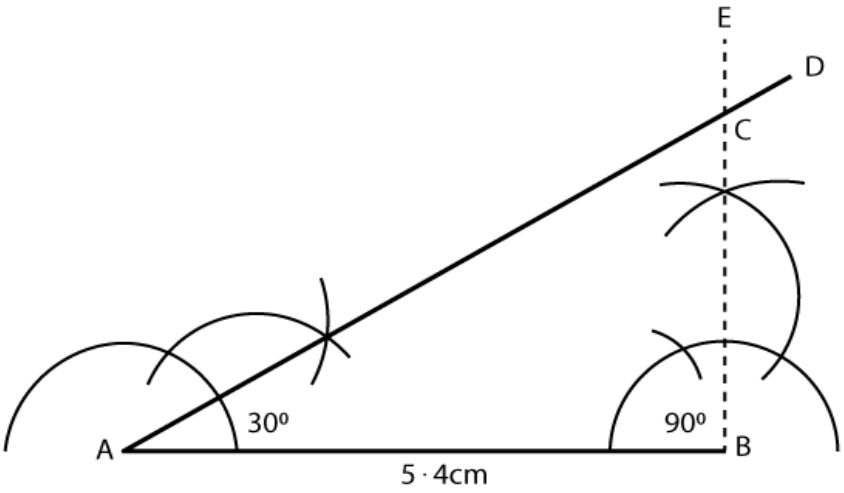
AC = 4.5 cm
BC = 6 cm
$\angle C = 60^0$
Steps of Construction:
(i) Draw a line AC of length 4.5 cm
(ii) Using compasses, construct $\angle ACB = 60^0$
(iii) Draw an arc of 6 cm radius and mark it as B such that BC = 6 cm
(iv) Now, join B and A

7. AC = 6 cm, $\angle A = 60^0$ and $\angle C = 45^0$. Measure AB and BC.
Solution:



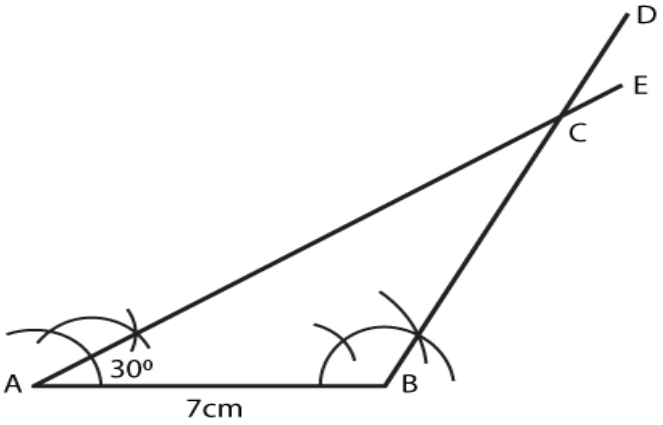
Given
AC = 6 cm
$\angle A = 60^0$
$\angle C = 45^0$
Steps of Construction:
(i) Draw a line segment AC of length 6 cm
(ii) With the help of Compass, construct $\angle A = 60^0$
(iii) Again, using compass, construct $\angle C = 45^0$
(iv) AD and CE intersect each other at point B
(v) Now, the obtained $\triangle ABC$ is the required triangle
(vi) Measure the side AB and BC with the help of a scale
(vii) We get, AB = 4.4 cm and BC = 5.4 cm

8. AB = 5.4 cm, $\angle A = 30^0$ and $\angle B = 90^0$. Measure $\angle C$ and side BC.
Solution:



Given
AB = 5.4 cm
$\angle A = 30^0$ and
$\angle B = 90^0$
Steps of Construction:
(i) Draw a line segment AB of length 5.4 cm
(ii) With the help of compass, construct $\angle A = 30^0$
(iii) Similarly, construct $\angle B = 90^0$
(iv) AD and BE intersect each other at point C
(v) Hence, the obtained $\triangle ABC$ is the required triangle
(vi) On measuring we get, $\angle C = 60$ and side BC = 3.1 cm approximately

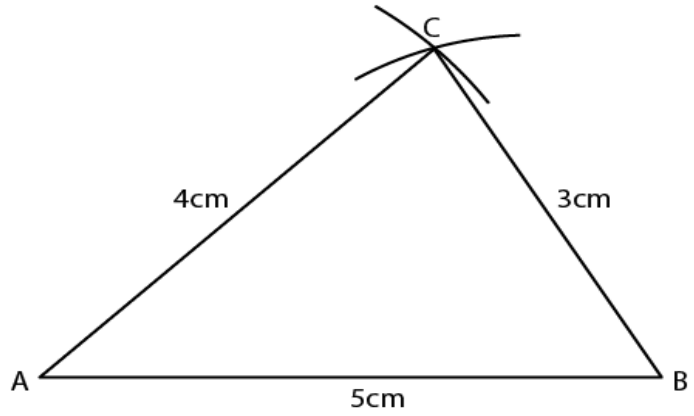
9. AB = 7 cm, $\angle B = 120^0$ and $\angle 30^0$. Measure AC and BC.
Solution:



Given
AB = 7 cm

$\angle B = 120^0$
$\angle A = 30^0$
Steps of Construction:
(i) Draw a line segment AB of length 7 cm
(ii) With the help of compass, construct $\angle A = 30^0$
(iii) Similarly, construct $\angle C = 45^0$
(iv) AE and BD intersect each other at point C
(v) Hence, the obtained $\triangle ABC$ is the required triangle
(vi) On measuring the lengths, we get AC = 12 cm and BC = 7 cm respectively

10. BC = 3 cm, AC = 4 cm and AB = 5 cm. Measure angle ACB. Give a special name to this triangle
Solution:



Given
BC = 3 cm
AC = 4 cm and
AB = 5 cm
Steps of Construction:
(i) Draw a line segment AB of length 5 cm
(ii) From B, using compass cut an arc of 3 cm radius
(iii) Similarly, from A again with the help of compass, cut an arc of 4 cm bisecting the previous arc formed from point B
(iv) Now, join point C with A and B
(v) The obtained triangle is the required $\triangle ABC$
(vi) On measuring $\angle ACB$, we get $\angle ACB = 90^0$.
Therefore, the obtained triangle ABC is a right angled triangle