NCERT Class 9 Solutions: Constructions (Chapter 11) Exercise 11.2

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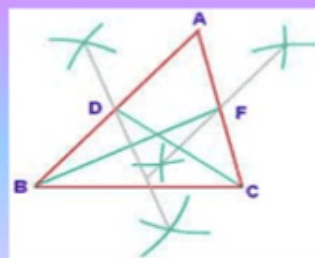
Q-1 Construct a triangle JAB in which $AB = 7cm, \angle A = 75°$ and $JA + JB = 13cm$.

Solution:

Image Title: Triangle JAB

Image Description: Triangle JAB, $AB = 7cm, \angle A = 75°$ and $JA + JB = 13cm$

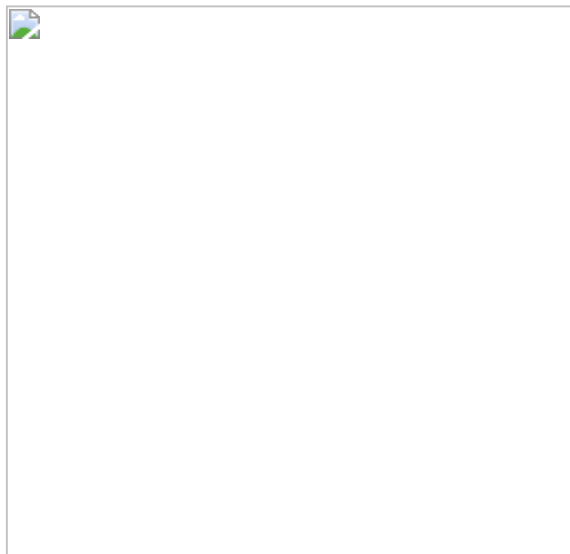Give, $\triangle ABC, AB = 7cm, \angle A = 75°$ and $JA + JB = 13cm$

Step of Construction

- A line segment AB of 7 cm is drawn.

- At point A, an angle $\angle CAB$ is constructed such that it is equal to $75°$.

- A line segment $AD = 13$ cm is cut on AC (which is equal to $JA + JB$).

- DB is joined and $\angle DBE = \angle ADB$ is made.

- Let BE intersect AC at J.

Thus, required triangle is $\triangle JAB$

Q-2 Construct a triangle DAB in which $AB = 8cm, \angle A = 45°$ and $AD - DB = 3.5\ cm$.

Solution:

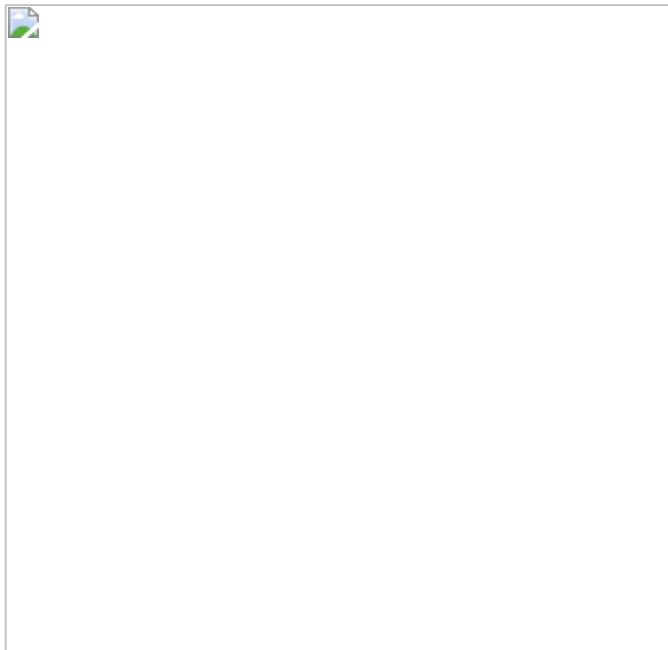Give $\triangle DAB, AB = 8cm, \angle A = 45°$ and $AD - DB = 3.5\ cm$

Steps of Construction

- A line segment $AB = 8$ cm is drawn and at point A, make an angle of $45°$ i.e.. $\angle CAB$.

- Cut the line segment $AG = 3.5\ cm$ (equal to $DA - DB$) on ray AC.

- Join GB and draw the perpendicular bisector PQ of GB.

- Let it intersect AC at point D. Join DB.

Thus, $\triangle DAB$ is the required triangle.

Q-3 Construct a triangle EAR in which $AR = 6cm, \angle A = 60°$ and PR– $EA = 2cm.$

Solution:

Give, Triangle EAR, $AR = 6cm, \angle A = 60°$ and PR– $EA = 2cm.$

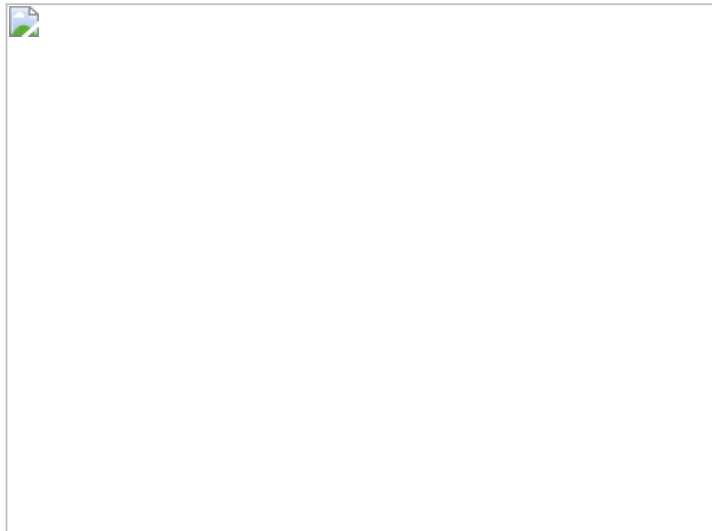## Steps of Construction

- A ray AX is drawn and cut off a line segment AR = 6 cm from it.

- A ray AY is constructed making an angle of 60º with AR and YA is produced to form a line YAY$'$

- Cut off a line segment AB = 2cm from AY$'$. RB is joined.

- Draw perpendicular bisector of RB intersecting AY at a point E. ER is joined.

Thus, ∆EAR is the required triangle.

Q-4 Construct a triangle HFI in which $\angle F = 30°, \angle I = 90°$ and $HF + FI + IH = 11\ cm$.

Solution:

Give, Triangle HFI $\angle F = 30°, \angle I = 90°$ and $HF + FI + IH = 11\ cm$.
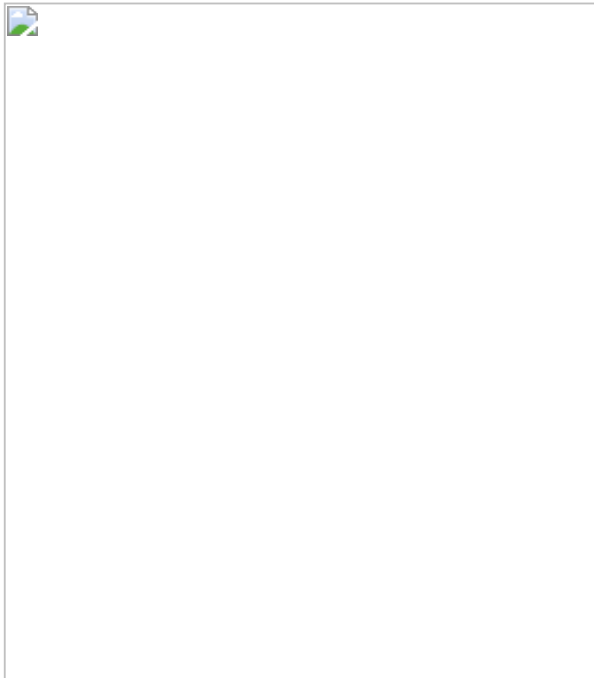
Steps of Construction:

- A line segment $CA = 11$ cm is drawn. ($HF + FI + IH = 11\ cm$)

- An angle, $\angle DCA = 30°$ and an angle $\angle BAC = 90°$.

- $\angle DCA$ And $\angle BAC$ are bisected. The bisectors of these angles intersect each other at point H.

- Perpendicular bisectors PQ of CH and RV of AH are constructed.

- Let PQ intersect CA at F and RV intersect CA at I. FH and HI are joined.

Thus, ΔHFI is the required triangle.

Q-5 Construct a right triangle whose base is 12cm and sum of its hypotenuse and other side is 18 cm.

Solution:

Give, right triangle base $12 cm$ and othrside is $18 cm$

Steps of Construction:

- A ray AX is drawn and a cut off a line segment $AJ = 12\,cm$ is made on it.

- $\angle XAY = 90°$ is constructed.

- Cut off a line segment $AQ = 18$ cm is made on AY. JQ is joined.

- Perpendicular bisector of JQ is constructed intersecting AQ at P. PJ is joined.

- Thus, $\triangle PAJ$ is the required triangle.