

Mathematics

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(Chapter – 7) (Triangles)(Exemplar Problems)
(Class – IX)

Exercise 7.1

Write the correct answer in each of the following:

Question 7:

It is given that $\triangle ABC \cong \triangle FDE$ and $AB = 5$ cm, $\angle B = 40^\circ$ and $\angle A = 80^\circ$. Then which of the following is true?

(A) $DF = 5$ cm, $\angle F = 60^\circ$

(B) $DF = 5$ cm, $\angle E = 60^\circ$

(C) $DE = 5$ cm, $\angle E = 60^\circ$

(D) $DE = 5$ cm, $\angle D = 40^\circ$

Answer 7:

(B) $DF = 5$ cm, $\angle E = 60^\circ$

Solution:

Given that: In $\triangle ABC$, $AB = 5$ cm, $\angle B = 40^\circ$ and $\angle A = 80^\circ$

Using angles sum property of triangle, we have

$$\angle A + \angle B + \angle C = 180^\circ$$

$$\Rightarrow 80^\circ + 40^\circ + \angle C = 180^\circ$$

$$\Rightarrow 120^\circ + \angle C = 180^\circ$$

$$\Rightarrow \angle C = 180^\circ - 120^\circ$$

$$\Rightarrow \angle C = 60^\circ$$

It is given that $\triangle ABC \cong \triangle FDE$, so we have

$AB = FD$, $BC = DE$ and $AC = FE$ &

$\angle A = \angle F$, $\angle B = \angle D$ and $\angle C = \angle E$

[\because Corresponding part of congruent triangles are equal]

$$\Rightarrow AB = FD = 5\text{cm and } \angle C = \angle E = 60^\circ.$$

Hence, the option (B) is correct.

