Exercise VSAQs

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Question 1: In two congruent triangles ABC and DEF, if AB = DE and BC = EF. Name the pairs of equal angles.

Solution:

In two congruent triangles ABC and DEF, if AB = DE and BC = EF, then

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

Question 2: In two triangles ABC and DEF, it is given that $\angle A = \angle D$, $\angle B = \angle E$ and $\angle C = \angle F$. Are the two triangles necessarily congruent?

Solution: No.

Reason: Two triangles are not necessarily congruent, because we know only angle-angle-angle (AAA) criterion. This criterion can produce similar but not congruent triangles.

Question 3: If ABC and DEF are two triangles such that AC = 2.5 cm, BC = 5 cm, C = 75°, DE = 2.5 cm, DF = 5 cm and D = 75°. Are two triangles congruent?

Solution: Yes.

Reason: Given triangles are congruent as AC = DE = 2.5 cm, BC = DF = 5 cm and

$\angle D = \angle C = 75°$.

By SAS theorem triangle ABC is congruent to triangle EDF.

Question 4: In two triangles ABC and ADC, if AB = AD and BC = CD. Are they congruent?

Solution: Yes.

Reason: Given triangles are congruent as

AB = AD

BC = CD and

AC [common side]

By SSS theorem triangle ABC is congruent to triangle ADC.

Question 5: In triangles ABC and CDE, if AC = CE, BC = CD, $\angle A = 60°$, $\angle C = 30°$ and $\angle D = 90°$. Are two triangles congruent?

Solution: Yes.

Reason: Given triangles are congruent

Here AC = CE

BC = CD

$\angle B = \angle D = 90°$

By SSA criteria triangle ABC is congruent to triangle CDE.

Question 6: ABC is an isosceles triangle in which AB = AC. BE and CF are its two medians. Show that BE = CF.

Solution: ABC is an isosceles triangle (given)
AB = AC (given)
BE and CF are two medians (given)

To prove: BE = CF

In $\triangle CFB$ and $\triangle BEC$

CE = BF (Since, AC = AB = AC/2 = AB/2 = CE = BF)
BC = BC (Common)
$\angle ECB = \angle FBC$ (Angle opposite to equal sides are equal)
By SAS theorem: $\triangle CFB \cong \triangle BEC$

So, BE = CF (By c.p.c.t)