

CHAPTER-7 | Triangles

QUIZ PART-09

1. In $\triangle ABC$, if altitudes BE and CF to sides AC and AB are equal, what can be concluded?

- A. $\triangle ABE \cong \triangle ACF$
- B. $\triangle ABE \neq \triangle ACF$
- C. $\triangle ABE$ is a right-angled triangle
- D. $\triangle ABE$ is scalene

(A)

Explanation: Since BE and CF are altitudes and equal, $\triangle ABE$ and $\triangle ACF$ are congruent by the criteria of congruence (AA or RHS).

2. If $\triangle ABE \cong \triangle ACF$, what can be concluded about AB and AC ?

- A. $AB = AC$
- B. $AB = AC$
- C. $AB < AC$
- D. $AB > AC$

(B)

Explanation: Since $\triangle ABE \cong \triangle ACF$, corresponding sides AB and AC are equal, indicating that $\triangle ABC$ is isosceles.

3. In $\triangle ABC$, if BE and CF are altitudes to sides AC and AB and $BE = CF$, what is the property of $\triangle ABC$?

- A. $\triangle ABC$ is equilateral
- B. $\triangle ABC$ is scalene
- C. $\triangle ABC$ is isosceles
- D. $\triangle ABC$ is right-angled

(C)

Explanation: Since BE and CF are equal altitudes, $\triangle ABC$ must be isosceles with $AB = AC$.

4. If $\triangle ABC$ and $\triangle DBC$ are two isosceles triangles on the same base BC , what is true about $\angle ABD$ and $\angle ACD$?

- A. $\angle ABD = \angle ACD$
- B. $\angle ABD \neq \angle ACD$
- C. $\angle ABD = 90^\circ$
- D. $\angle ABD > \angle ACD$

(A)

Explanation: Since $\triangle ABC$ and $\triangle DBC$ are isosceles triangles on the same base, the angles $\angle ABD$ and $\angle ACD$ must be equal due to symmetry.

5. If $\triangle ABC$ is an isosceles triangle with $AB = AC$ and side BA is produced to D such that $AD = AB$, what can be concluded about $\angle BCD$?

- A. $\angle BCD = 90^\circ$
- B. $\angle BCD = 60^\circ$
- C. $\angle BCD = 45^\circ$
- D. $\angle BCD = 120^\circ$

(A)

Explanation: Since $AB = AC$ and $AD = AB$, $\triangle BCD$ forms a right angle by the properties of isosceles triangles.

6. In $\triangle ABC$, if $AB = AC$ and $AD = AB$, what is the property of $\angle BCD$?

- A. $\angle BCD$ is acute
- B. $\angle BCD$ is obtuse
- C. $\angle BCD$ is a right angle
- D. $\angle BCD$ is reflex

C

Explanation: By the construction of the triangle, where $AB = AC$ and $AD = AB$, $\angle BCD$ must be a right angle.

7. In $\triangle ABC$, if BE and CF are altitudes, and $\triangle ABC$ is isosceles, what can be said about BE and CF ?

- A. $BE \neq CF$
- B. $BE = CF$
- C. BE is greater than CF
- D. CF is greater than BE

(B)

Explanation: In an isosceles triangle, the altitudes from the equal sides to the opposite base are equal, so $BE = CF$.

8. If $\triangle ABC$ is isosceles with $AB = AC$ and the altitudes BE and CF are drawn, what is the relation between BE and CF ?

- A. $BE = CF$
- B. $BE > CF$
- C. $BE < CF$
- D. $BE \neq CF$

(A)

Explanation: In an isosceles triangle, the altitudes from equal sides to the opposite base are always equal, hence $BE = CF$.

9. In $\triangle ABC$, if $AB = AC$ and $\angle ABC = \angle ACB$, what is the property of $\triangle ABC$?

- A. $\triangle ABC$ is equilateral
- B. $\triangle ABC$ is scalene
- C. $\triangle ABC$ is isosceles
- D. $\triangle ABC$ is right-angled

Answer: C

Explanation: Since $AB = AC$ and $\angle ABC = \angle ACB$, $\triangle ABC$ is an isosceles triangle by definition.

10. If in $\triangle ABC$, BE and CF are altitudes to equal sides, what can be said about $\triangle ABC$?

- A. $\triangle ABC$ is scalene
- B. $\triangle ABC$ is isosceles
- C. $\triangle ABC$ is equilateral
- D. $\triangle ABC$ is right-angled

Answer: B

Explanation: If BE and CF are altitudes to the equal sides of an isosceles triangle, $\triangle ABC$ is isosceles, as the two altitudes are equal.