INDIAN SCHOOL AL WADI AL KABIR
Department: Mathematics
Class IX Worksheet – Triangles (2025-26)

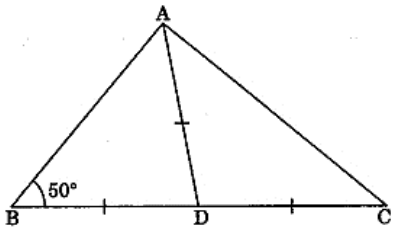
Questions of 1 mark each

Q.1.	If $\Delta ABC \cong \Delta DEF$, then							
	A	AC = DE	B	BC = DF	C	AB = DF	D	FE = CB
Q.2.	In ΔABC, AB = AC, $\angle B = 40°$, then $\angle C$ is equal to							
	A	50°	B	140°	C	80°	D	40°
Q.3.	If in a triangle ABC, $\angle A + \angle B = 105°$, $\angle B + \angle C = 120°$, then $\angle B$ is							
	A	70°	B	75°	C	45°	D	60°
Q.4.	If AB = QR, BC = RP and CA = PQ, then							
	A	$\Delta ABC \cong \Delta PQR$	B	$\Delta CBA \cong \Delta PRQ$	C	$\Delta BAC \cong \Delta RPQ$	D	$\Delta BCA \cong \Delta PQR$
Q.5.	In the isosceles ΔABC if AB =AC and $\angle A = 40°$, then find the measure of $\angle B$.							
	A	40°	B	75°	C	70°	D	140°
Q.6.	In a right - angled triangle, if one acute angle is half the other, then the smallest angle is							
	A	30°	B	15°	C	25°	D	35°
Q.7.	In ΔABC and ΔDEF, AB = DE, $\angle A = \angle D$. The two triangles will be congruent by SAS congruence if							
	A	BC = EF	B	AC = DF	C	AC = EF	D	BC = DF
Q.8.	In ΔABC, AB = BC, $\angle B = 50°$, then $\angle A$ is equal to							
	A	130°	B	45°	C	65°	D	100°

Q.9. In ΔABC and ΔPQR, if AB = PQ, ∠A = ∠P, ∠B = ∠Q, then which one of the congruence conditions apply.

A	ASA	B	SAS	C	SSS	D	RHS

Q.10. In figure, D is the mid-point of side BC of a ΔABC and ∠ABD = 50°. If AD = BD = CD, then the measure of ∠ACD is



A	30°	B	70°	C	80°	D	40°

ASSERTION AND REASONING

DIRECTION: A statement of Assertion (A) is followed by a statement of Reason (R).
Choose the correct option.

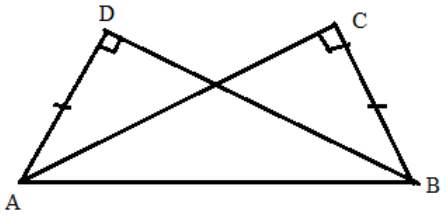
(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is true but Reason (R) is false.
(d) Assertion (A) is false but Reason (R) is true.

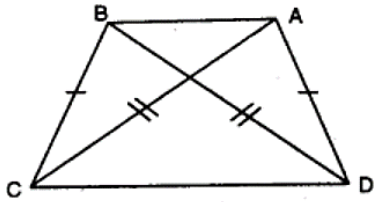
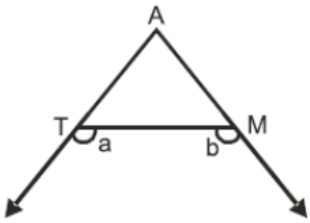
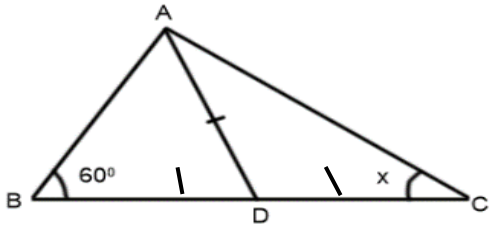
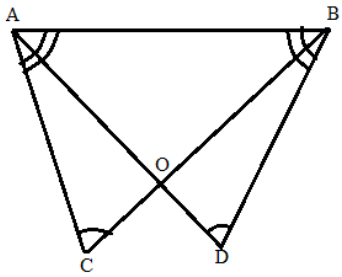
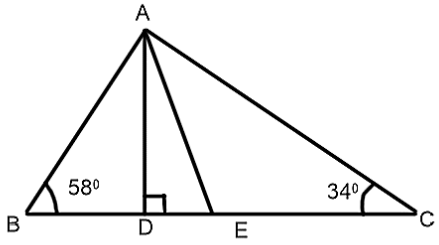
Q.11. Assertion: In right triangles ABC and DEF, if hypotenuse AB=EF and side AC=ED, then $\Delta ABC \cong \Delta EFD$.

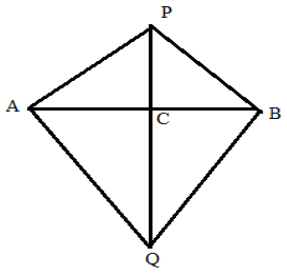
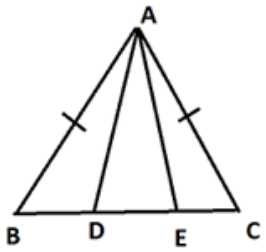
Reason: Two triangles are congruent if two sides and one angle of a triangle is equal to two sides and an angle of another triangle.

Questions of 2 marks each

Q.12. In the given figure, prove that ΔABD ≅ ΔBAC?



Q.13.	in the given figure, if AD=BC and BD=AC then prove that ∠DAB= ∠CBA. 
Q.14.	In the given figure, if ∠a > ∠b, then show that ∠ ATM < ∠ AMT. 
Q.15.	In the given figure, AD = BD = DC and ∠ABD = 60°, find x. 
Questions of 3 marks each	
Q.16.	In the given figure, ∠ACB =∠BDA, ∠ABD =∠BAC. Prove that ΔAOB is isosceles. 
Q.17.	In given figure AD ⊥ BC, AE is the angle bisector of ∠BAC. Find ∠DAE. 

Questions of 5 marks each	
Q.18.	AB is a line segment. P and Q are points on opposite sides of AB such that each of them is equidistant from the points A and B. Show that the line PQ is the perpendicular bisector of AB. 
Q.19.	a) Prove that angles opposite to equal sides of an isosceles triangle are equal. b) In an isosceles triangle ABC with AB = AC, D and E are points on BC such that BE = CD. Show that AD = AE. 
Case study question (4 marks)	
Q.20.	Truss bridges are formed with a structure of connected elements that form triangular structures to make up the bridge. Trusses are the triangles that connect to the top and bottom cord and two end posts. You can see that there are some triangular shapes are shown in the picture given alongside and these are represented as ΔABC, ΔCAD, and ΔBEA.  Based on the above information, answer the following questions: (i) If AB = CD and AD = CB, then prove ΔABC ≅ ΔCDA (ii) If AB = 7.5 m, AC = 4.5 m and BC = 5 m. Find the perimeter of ΔACD, if ΔABC ≅ ΔCDA by SSS congruence rule. (iii) If ΔABC ≅ ΔFDE, AB = 5 cm, ∠B = 40° and ∠A = 80°, then find the length of DF and ∠E.