1. In ΔABC and ΔDBC, if AD is extended to intersect BC at P, what is the congruence rule for ΔABD and ΔACD?
A. SSS rule B. SAS rule
C. RHS rule D. ASA rule (B)
Explanation: Since ΔABC and ΔDBC are isosceles and share the side BD, ΔABD ≅ ΔACD by the SAS rule (Side-Angle-Side).

2. In the figure where AD bisects A and D, what can be concluded about ΔABP and ΔACP?
A. ΔABP≠ ΔACP B. ΔABP≅ ΔACP
C. ΔABP > ΔACP D. ΔABP < ΔACP (B)
Explanation: ΔABP = ΔACP by the criteria of congruence (SAS), as AB = AC ∠ABP = ∠ACP, and BP = CP.

3. If AD bisects ∠A and ∠D in ΔABD and ΔACD, what does the line AP do?
A. AP is a median
B. AP is an altitude
C. AP bisects A and D
D. AP is parallel to BC (C)
Explanation: Since AD bisects 2A and D, AP bisects both of those angles as well, according to the properties of isosceles triangles.

4. What can be concluded about AP if it is the perpendicular bisector of BC in ΔABC?
A. AP is parallel to BC
B. AP bisects A C. AP bisects C
D. AP divides ΔABC into two congruent right triangles (B)
Explanation: If AP is the perpendicular bisector of BC, it divides ΔABC into two congruent triangles and bisects A.

4. In ΔABC, if point P is equidistant from two lines l and m intersecting at point A, what can be concluded about the line AP?
A. AP bisects the angle between l and m
B. AP is perpendicular to l
C. AP is parallel to l
D. AP is parallel to m (A)
Explanation: Since P is equidistant from the two intersecting lines l and m, the line AP bisects the angle between them.

5. In ΔABC, if AD is an altitude and AB = AC, what does AD do?
A. AD bisects A B. AD bisects C
C. AD bisects BC D. AD is not perpendicular (A)
Explanation: Since AB = AC, AD is the altitude and also the angle bisector, so it bisects ∠A.

6. In ΔABC, if AD is the perpendicular bisector of BC, what can be concluded about ΔABC?
A. ΔABC is isosceles
A.B. ΔABC is scalene
C. ΔABC is equilateral
D. ΔABC is right-angled (A)
Explanation: If AD is the perpendicular bisector of BC, then AABC is isosceles, with AB = AC.

7. If AD bisects ∠A in ΔABC and AB = AC, what does this imply about ΔABC?
A.ΔABC is right-angled
B.ΔABC is isosceles
C. ΔABC is equilateral
D. ΔABC is scalene (B)
Explanation: Since AD bisects A and AB = AC, AABC must be isosceles.

8. In an isosceles triangle ABC, if AD is the altitude, what can be concluded about AD?
A. AD is equal to AB
B. AD is equal to AC
C. AD bisects BC
D. AD bisects A C
Explanation: In an isosceles triangle, the altitude from the vertex bisects the base, so AD bisects BC.

9. In ΔABC, if AB = AC and AD is the altitude, what is the relation between ∠B and ∠C?
A. ∠B = ∠C
B. ∠B ≠∠C
C.∠B > ∠C
D. ∠B < ∠C (A)
Explanation: Since AB = AC, AABC is isosceles, and B = C by the properties of isosceles triangles.

10. If ΔABC is isosceles with AB = AC, and AD is the perpendicular bisector of BC, what is the nature of ΔABD and ΔACD?
A. ΔABD ≠ ΔACD
B. ΔABD ≅ ΔACD
C. ΔABD is scalene
D. ΔABD is right-angled (B)
Explanation: Since AB = AC and AD is the perpendicular bisector of BC, ΔABD ΔACD by the SAS congruence rule.