Solutions to Past Paper Questions – Angles in Circles

13) (a) (i) RPQ = 56° (alternate segment theorem)
(ii) ROQ = 112° (angle at centre is twice angle at circumference)

(b) (i) BAD = 180 – 132 = 48° (opposite angles of cyclic quadrilateral)
So BAC = 48 – 25 = 23°

(ii) ABC = 90° (angle in a semicircle)
DBC = 25° (angles in the same segment)
So ABD = 90 – 25 = 65°

10) (a) PQR = 90° (angle in a semicircle)

(b) PRQ = 56° (angles in the same segment)

(c) POQ = 112° (angle at centre is twice angle at circumference)

12) (a) BAC = 80° ÷ 2 = 40° (angle at centre is twice angle at circumference)

(b) OBC = (180° - 80°) ÷ 2 = 50° (OBC is an isosceles triangle)
ABC = 38° (alternate segment theorem)
So OBA = 50° - 38° = 12°

(c) If we could draw a circle with diameter ED, passing through A, then EAD would be an angle in a semicircle and so would be 90°. But EAD = 40° +38° = 78°. So it is not possible.

12) (a) PQT = 90º (angle between tangent and radius)
so PQR = 90º - 56º = 34º

(b) PRQ = 90º (angle in a semicircle)
QRT = 56º (TR = TQ because both are tangents, so TRQ is isosceles)
PRT = 90º + 56º = 146º