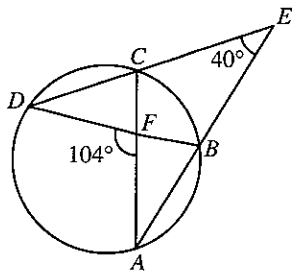
13. In the diagram, ABE and DCE are straight lines, AC and BD intersect at F, $\angle AED = 40°$ and $\angle AFD = 104°$. Find

(a) $\angle ABD$,

(b) $\angle BDE$.

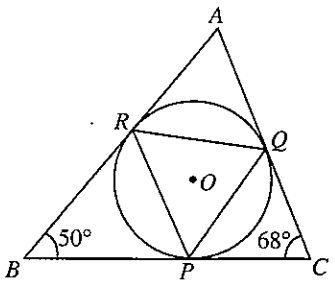


14. In the diagram, the sides of $\triangle ABC$ touch the circle with centre O at P, Q and R, $\angle ABC = 50°$ and $\angle ACB = 68°$. Find

(a) $\angle BAC$,

(b) $\angle CPQ$,

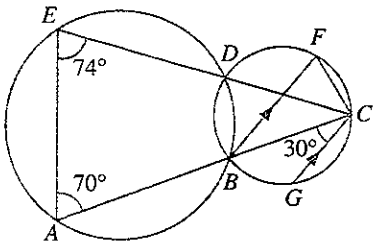
(c) $\angle PQR$.



15. In the diagram, ABC and CDE are straight lines, $BF \parallel GC$, $\angle BAE = 70°$, $\angle AED = 74°$ and $\angle BCG = 30°$. Find

(a) $\angle BFC$,

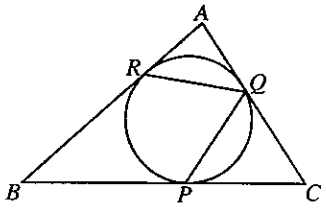
(b) $\angle DCF$.



16. In the diagram, the circle touches the sides of $\triangle ABC$ at P, Q and R.

(a) If $AB = 16$ cm, $BC = 19$ cm and $AC = 13$ cm, find the length of BP.

(b) If $\angle ABC = 43°$, find $\angle PQR$.



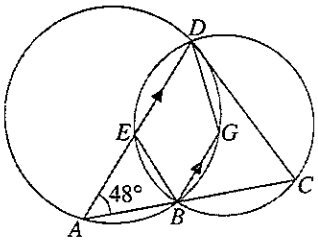
17. In the diagram, the centre G of the smaller circle lies on the circumference of the larger circle. ABC and AED are straight lines, $BG \parallel AD$ and $\angle BAE = 48°$. Find

(a) $\angle BGD$,

(b) $\angle BCD$,

(c) $\angle EDG$,

(d) $\angle BED$.



18. In the diagram, the chords AC and BD intersect at E, $BE = 6$ cm, $DE = 2$ cm, $EC = 2.5$ cm and $AD = 4$ cm.

(a) Name a triangle that is similar to $\triangle ADE$.

(b) Find the lengths of AE and BC.

(c) Find the ratio of the area of $\triangle ADE$ to the area of $\triangle BCE$.