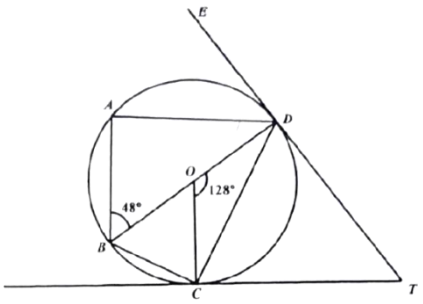
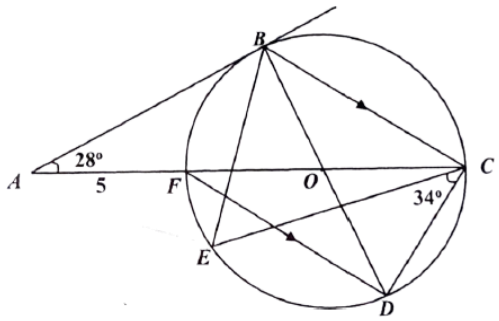
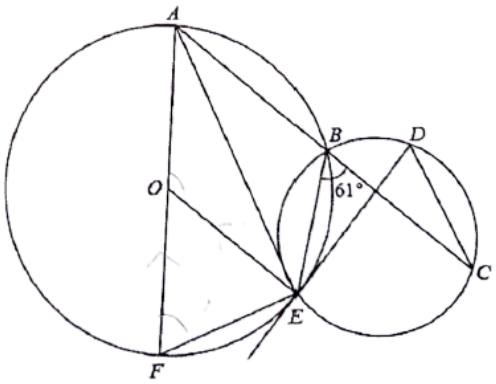
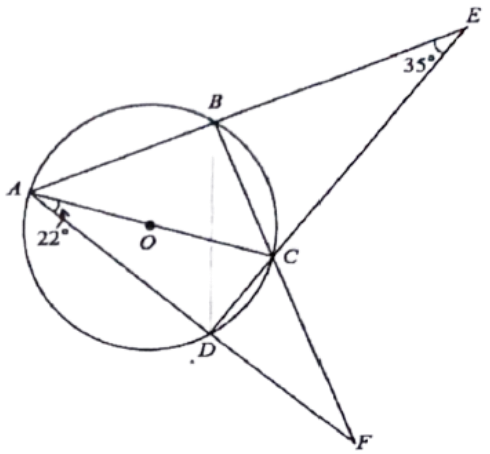
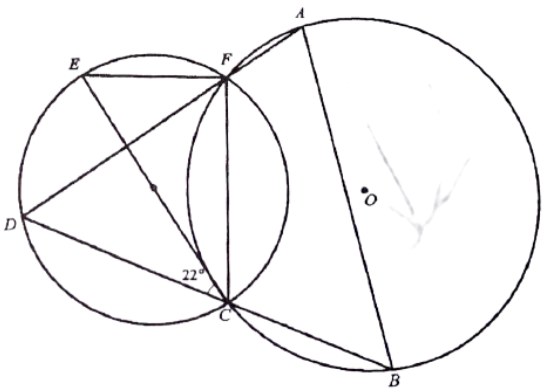
5 MUST KNOW QUESTIONS TO *CONQUER*

CIRCLES

1	The circle $ABCD$ has centre O. TDE and TCF are tangents to the circle at D and C respectively. BOD is the diameter. Given that $\angle COD = 128°$ and $\angle ABD = 48°$. (a) Calculate, giving your reasons clearly, (i) $\angle CTD$, (ii) $\angle DCT$, (iii) $\angle ADC$. (b) If OD is 6 cm, find the length of CT.  Ans: (a)(i) 52° (ii) 64° (iii) 68° (b) 12.3m
2	In the diagram, O is the centre of the circle and B, C, D, E and F lie on the circle. AB is a tangent to the circle at B. AFC is a straight line, FD is parallel to BC, $AF = 5$ cm. $\angle DCE = 34°$ and $\angle BAC = 28°$.  (a) (i) Find $\angle ABO$. Give a reason. (ii) Calculate the value of the radius of the circle. (b) Find the following angles, (i) $\angle OBC$, (ii) $\angle BEC$, (iii) $\angle FDE$. Ans: (a)(i) $\angle ABO = 90°$; Tangent perpendicular to the radius (ii) $x = 4.42$ (b)(i) 31° (b)(ii) 59° (b)(iii) 25°
3	In the diagram, DE is a tangent to the circle with centre O. ABC and AOF are straight lines and $\angle CBE = 61°$  (a) Giving your reasons, find (i) angle AOE, (ii) angle AFE, (iii)angle AEO, (iv)angle AED. (b) Are the lines AE and DC parallel? Give a reason for your answer. Ans: (a)(i) 122° (ii) 61° (iii) 29° (iv) 61° (b) Ye

4	In the diagram, AC is a diameter of circle $ABCD$ with centre O. When produced, the lines AB and DC meet at E. The straight lines ADF and BCF cut the circle at D and C respectively. $\angle BEC = 35°$ and $\angle CAD = 22°$. (a) Find (i) $\angle CBE$, (ii) $\angle CAB$, (iii)$\angle COD$, (iv)$\angle ABD$. (b) (i) Prove that E, B, D, and F lie on a circle. (ii) Hence, state the position of the centre of the circle $EBDF$.  Ans: (a)(i) 90° (ii) 33° (iii) 44° (iv) 68° (b)(i) $\angle FDE = \angle FBE = 90°$ ($\angle$s in the same seg or angle in the semicircle) E, B, D and F lie on a circle. (ii) Mid point of EF
5	In the diagram, the points C, D, E and F lie on a circle. DC and DF produced cut a second circle, with centre O, at B and A respectively. The line CE is a diameter to the smaller circle. $\angle ECD = 22°$. (a) Find (i) $\angle DFE$, (ii) $\angle DFC$, (iii)$\angle ABC$, (iv)$\angle AOC$.  (b) Show that triangles DFC and DBA are similar. (c) Given that $DF = 15$cm, $CD = 13.5$cm, $BC = 11.5$cm, calculate AF. Ans: (a)(i) 22° (ii) 68° (iii) 68° (iv) 136° (c) 7.5 cm