

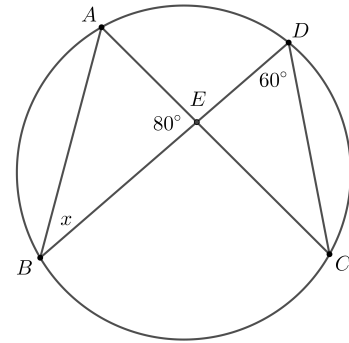


Intermediate Math Circles

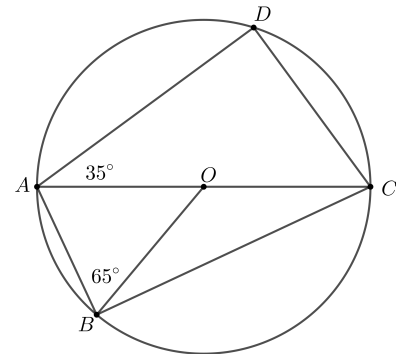
Wednesday November 3 2021

Problem Set 2

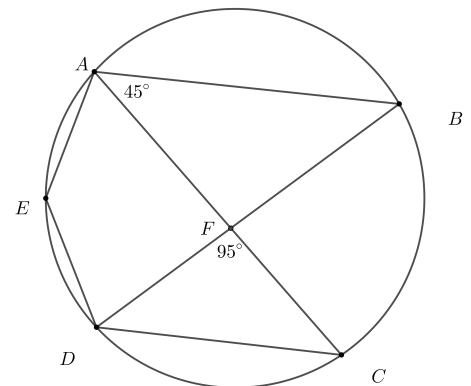
1.) A, B, C and D are points on a circle. AC meets BD at E . Find the measure of $\angle ABE$.



2.) A, B, C and D are points on a circle with O at its centre. COA is a straight line. Find the measure of $\angle BCD$.

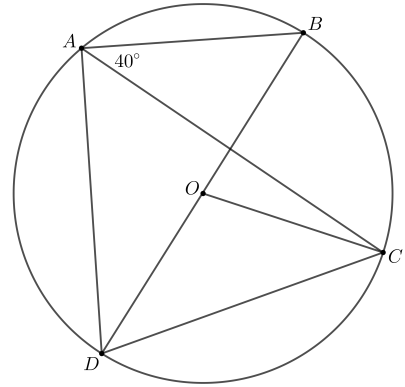


3.) A, B, C, D and E are points on a circle. Find the measure of $\angle DEA$.

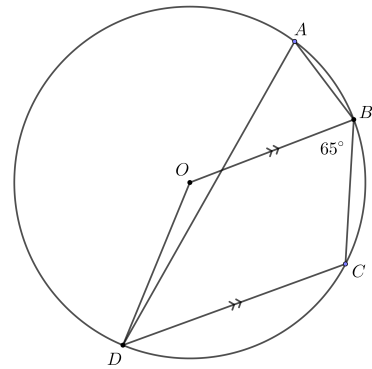




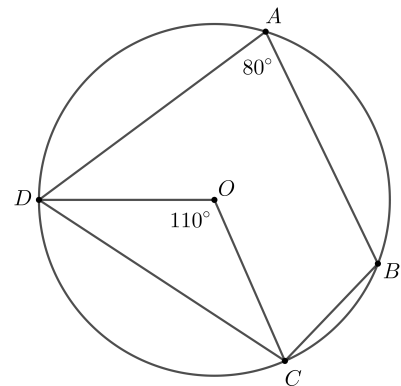
4.) A, B, C and D are points on a circle with O at its centre. DOB is a straight line. Find the measure of $\angle OCD$.



5.) A, B, C and D are points on a circle with O at its the centre. $OB \parallel DC$. Find the measure of $\angle BAD$.

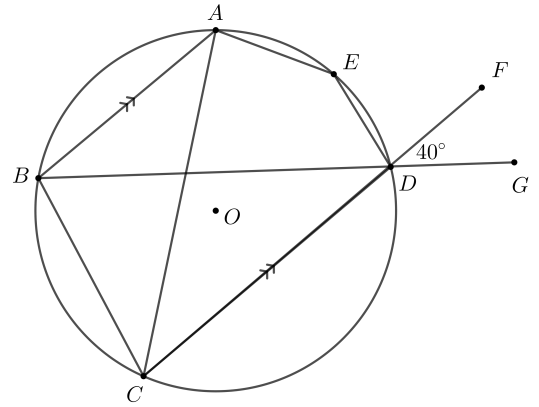


6.) A, B, C and D are points on a circle with O at its centre. Find the measure of $\angle OCB$.

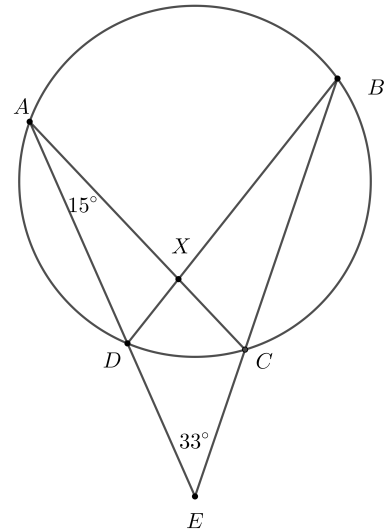




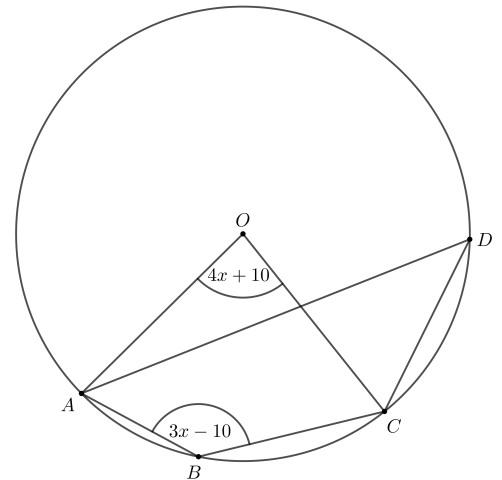
7.) A, B, C, D and E are points on a circle with O at its centre. $BA \parallel CD$. BD is extended to G and CD is extended to F . If $\angle FDG = 40^\circ$, find the measure of $\angle ACD$.



8.) A, B, C and D are points on a circle. AB and DC are extended to meet at E . If $\angle AED = 33^\circ$ and $\angle BDC = 15^\circ$, find the measure of $\angle AXB$.

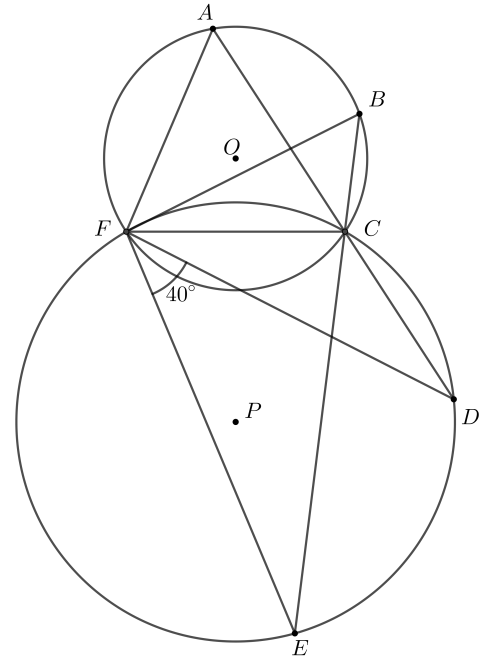


9.) A, B, C and D are points on a circle with O at its centre. Given $\angle AOC = 4x + 10$ and $\angle ABC = 3x - 10$, find the measure of $\angle ADC$.



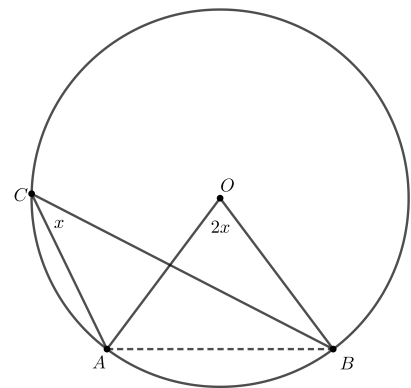


10.) Given two circles centred at O and P intersect at the points F and C . A and B are points on the circle with O at its centre. D and E are points on the circle with P at its centre. AD and BC intersect at C . If $\angle EFD = 40^\circ$, find the measure of $\angle AFB$.



11.) Show that the central angle subtended by a chord is twice the angle of an inscribed angle subtended by the same chord when the centre of the circle is outside the inscribed angle. (This is case 2 for Circle Angle 1)

Hint: Draw the diameter from C .



12.) $\triangle ABC$ has its vertices on a circle. The bisector of angle at A meets the circumference at D . From D , a line is drawn perpendicular to the chord BC so that it meets the circumference at E . Prove DE is a diameter of the circle.

