14 Fig. 14 shows a circle with centre O and radius r cm. The chord AB is such that angle $AOB = x$ radians. The area of the shaded segment formed by AB is 5% of the area of the circle.
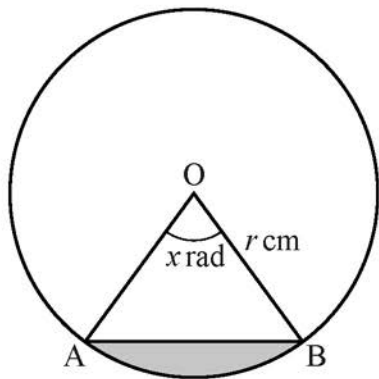

Fig. 14

(a) Show that $x - \sin x - \frac{1}{10}\pi = 0$. [4]

The Newton-Raphson method is to be used to find x.

(b) Write down the iterative formula to be used for the equation in part **(a)**. [1]

(c) Use three iterations of the Newton-Raphson method with $x_0 = 1.2$ to find the value of x to a suitable degree of accuracy. [3]