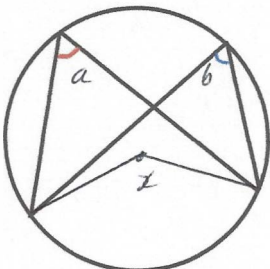


14th October	
<p>A straight line passes through the points (m, n) and (p, q) where</p> <p>$p = m + 8$ $n = q - 10$</p> <p>Find the gradient of the line</p>	<div style="text-align: right;">Corbettm0ths</div> <p>$(m, q-10)$ $(m+8, q)$</p> <p>$\frac{\text{rise}}{\text{run}} = \frac{10}{8} = \frac{5}{4}$</p>
<p>Show the equation $x^2 + 10x = 35$ has a solution between 2 and 3.</p> <p>$x^2 + 10x - 35 = 0$</p> <p>let $f(x) = x^2 + 10x - 35$</p>	<p>$f(2) = -11$ $f(3) = 4$</p> <p>since $f(x)$ is continuous & there is a change of sign, there must be a root.</p>
<p>Show the equation $x^2 + 10x = 35$ can be rearranged to give</p> $x = \frac{7}{2} - \frac{x^2}{10}$	<p>$10x = 35 - x^2$ $x = \frac{35}{10} - \frac{x^2}{10}$ $x = \frac{7}{2} - \frac{x^2}{10}$</p>
<p>Starting with $x_0 = 2$ use the iteration formula</p> $x_{n+1} = \frac{7}{2} - \frac{x_n^2}{10}$ <p>four times to find an estimate for the solution of $x^2 + 10x = 35$</p>	<p>$x_1 = 3.1$ $x_2 = 2.539$ $x_3 = 2.85534\dots$ $x_4 = 2.68469\dots$</p>
 <p>As angles at the centre are twice those at the circumference</p> <p>$2a = x$ $2b = x$</p>	<p>Prove the angles in the same segment are equal.</p> <p>$\therefore 2a = 2b$ $a = b$ QED</p>