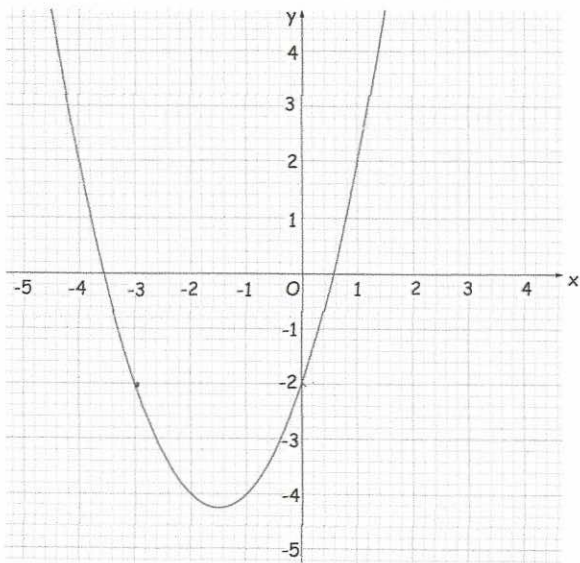


22nd May



Corbettmaths



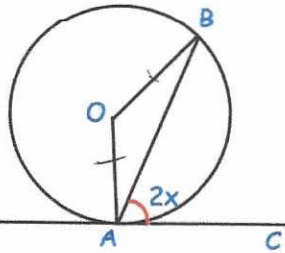
$f(x) = -2$

Find the possible values of  $x$

0 or -3

Find  $ff(0)$

-4



A and B are points on the circumference of a circle, centre O.  
CA is a tangent to the circle.  
Angle CAB =  $2x$

Prove that angle AOB =  $4x$   
Give reasons for each stage of your working.

$\angle OAB = 90 - 2x$   
as radius & tangent meet at  $90^\circ$

$\therefore \angle OBA = 90 - 2x$   
As OAB is isosceles

$\therefore \angle AOB = 4x$   
as angles in a triangle add up to  $180^\circ$

A circle has an equation of  $x^2 + y^2 = 5$

Q  $\left(\frac{4}{3}, \frac{\sqrt{29}}{3}\right)$  is a point on the circle.

Find the equation of the tangent to the circle at the point Q.

gradient of OQ =  $\frac{\sqrt{29}}{4}$   
gradient of tangent =  $-\frac{4}{\sqrt{29}}$

$y = -\frac{4}{\sqrt{29}}x + c$

$\frac{\sqrt{29}}{3} = -\frac{16\sqrt{29}}{87} + c$

$c = \frac{15\sqrt{29}}{29}$

$y = -\frac{4\sqrt{29}}{29}x + \frac{15\sqrt{29}}{29}$  [www.corbettmaths.com](http://www.corbettmaths.com)