

15th December

Corbettmaths

Express $10x^2 + 20x + 19$ in the form $a(x+b)^2 + c$

$$10(x^2 + 2x) + 19$$

$$10[(x+1)^2 - 1] + 19$$

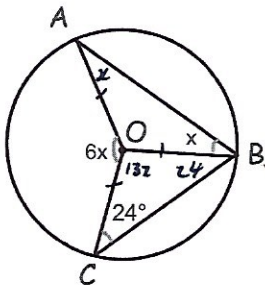
$$10(x+1)^2 + 9$$

Hence find the maximum value of

$$\frac{1}{10x^2 + 20x + 19}$$

Min of $10x^2 + 20x + 19$
is $(-1, 9)$

$$\boxed{\frac{1}{9}}$$

when $x = -1$ Find x

$$6x + (180 - 2x) + 132 = 360$$

$$4x = 48$$

$$x = 12^\circ$$

The equation of a curve is

$$y = (x-2)(x+6) \quad y = x^2 + 4x - 12$$

P is a point on the curve.

The tangent to the curve at P has gradient -5

Work out the coordinates of P

$$\frac{dy}{dx} = 2x + 4$$

$$2x + 4 = -5$$

$$2x = -9$$

$$x = -\frac{9}{2}$$

$$y = -\frac{39}{4}$$

$$(-4.5, -9.75)$$