



$$f(x) = \frac{3}{x^2 - 1} \quad \frac{3}{x^2 - 1} = 5$$

Given

$$f(x) = 5$$

find the possible values of x

$$\begin{aligned} 3 &= 5x^2 - 5 \\ 8 &= 5x^2 \\ \frac{8}{5} &= x^2 \end{aligned}$$

$$x = 1.265$$

or

$$x = -1.265$$

Expand and simplify

$$(x + 1)(x - 2)(2x - 5)$$

$$(x^2 - x - 2)(2x - 5)$$

$$2x^3 - 5x^2 - 2x^2 + 5x - 4x + 10$$

$$2x^3 - 7x^2 + x + 10$$

The line  $l_1$  has equation  $y = 4x + 9$ The line  $l_2$  has equation  $5x + 4y - 9 = 0$ Find the gradient of line  $l_2$ 

$$4y = -5x + 9$$

$$y = -\frac{5}{4}x + \frac{9}{4}$$

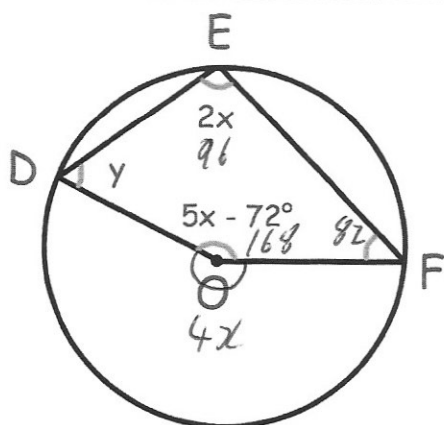
$$\boxed{-\frac{5}{4}}$$

Find the coordinates of the point of intersection of  $l_1$  and  $l_2$ 

$$5x + 4(4x + 9) - 9 = 0$$

$$21x + 27 = 0$$

$$x = -\frac{9}{7} \quad y = \frac{27}{7} \quad \left(-\frac{9}{7}, \frac{27}{7}\right)$$

Angle  $DEF = 2x$ Angle  $DOF = 5x - 72^\circ$ Angle  $EDO = y$ Angle  $EFO$  is  $14^\circ$  smaller than angle  $DEF$ 

Work out the value of y

$$5x - 72 + 4x = 360$$

$$9x - 72 = 360$$

$$9x = 432$$

$$x = 48$$

$$360 - 96 - 168 - 82$$

$$y = 14^\circ$$