29th January

Corbettmaths

Solve the inequality $\frac{4-5x}{3} > -7$

$\frac{4-5x}{3} > -7$

$4 - 5x > -21$

$-5x > -25$

$x < 5$

Write $(1 + 3\sqrt{6})(5 - \sqrt{6})$ in the form

$a + b\sqrt{6}$ where **a** and **b** are integers.

$5 - \sqrt{6} + 15\sqrt{6} - 18$

$= -13 + 14\sqrt{6}$

$(2x - 1)$ is a factor of

$2x^3 - 33x^2 + ax - 63$

Find a

let $f(x) = 2x^3 - 33x^2 + ax - 63$

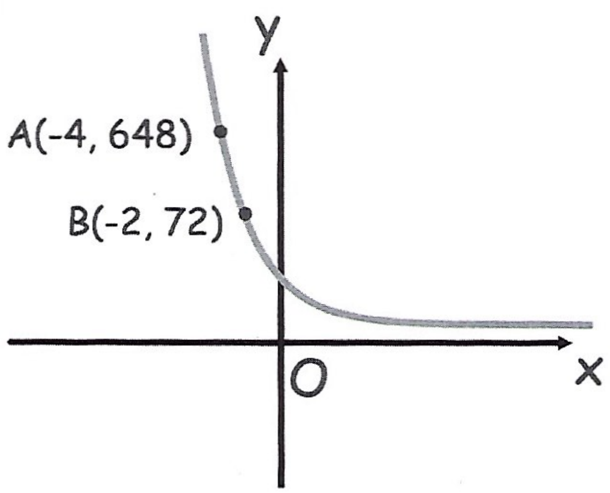
$f(\frac{1}{2}) = \frac{1}{4} - \frac{33}{4} + \frac{1}{2}a - 63$

$f(\frac{1}{2}) = 0$ as $(2x-1)$ is a factor.

$\frac{1}{2}a - 71 = 0$

$a = 142$

The sketch shows a curve with equation $y = ab^{-x}$ where a > 0 and b > 0



The curve passes through the points (–4, 648) and (–2, 72)

$y = ab^{-x}$

Calculate the value of a and b

$648 = ab^4$

$72 = ab^2$ divide

$9 = b^2$

$b = 3$ (since $b > 0$)

$72 = 9a$

$a = 8$

$a = 8$

$b = 3$

