9th June **Higher Plus 5-a-day**

Corbettmaths

Show algebraically that

$0.9\dot{1}\dot{3}$

can be written as $\frac{452}{495}$

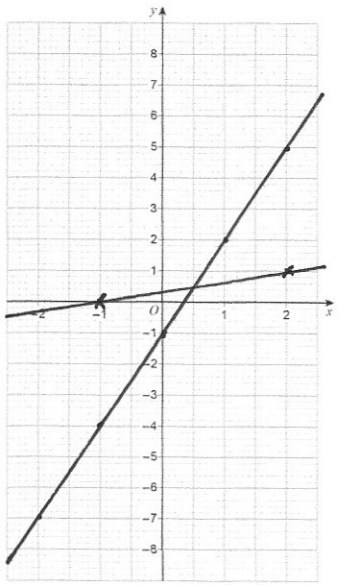
$x = 0.913131...$

$10x = 9.131313...$

$1000x = 913.1313...$

$990x = 904$

$x = \frac{904}{990} = \frac{452}{495}$



$y = f^{-1}(x)$

$y = f(x)$

$$f(x) = \frac{x+1}{3}$$

Find $f^{-1}(x)$

$y = \frac{x+1}{3}$

$3y = x + 1$

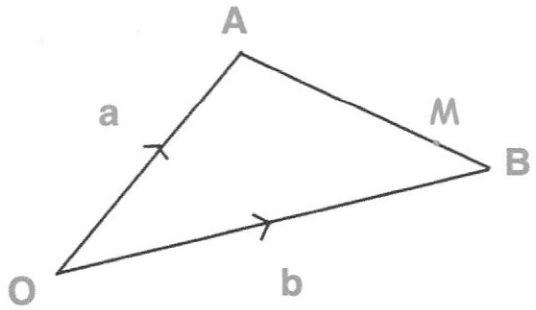
$x = 3y - 1$

$f^{-1}(x) = 3x - 1$

Draw

$y = f(x)$ and $y = f^{-1}(x)$

$y = \frac{1}{3}x + \frac{1}{3}$



$\vec{AB} = -\underline{a} + \underline{b}$

$\vec{AM} = -\frac{5}{7}\underline{a} + \frac{5}{7}\underline{b}$

$\vec{MB} = -\frac{2}{7}\underline{a} + \frac{2}{7}\underline{b}$

OAB is a triangle.
M is a point on AB such that
AM : MB = 5 : 2

$\vec{OA} = \mathbf{a}$ $\vec{OB} = \mathbf{b}$

Express $\vec{MO}$ in terms of **a** and **b**

$\vec{MO} = \vec{MB} + \vec{BO}$

$\vec{MO} = -\frac{2}{7}\underline{a} + \frac{2}{7}\underline{b} - \underline{b}$

$\vec{MO} = -\frac{2}{7}\underline{a} - \frac{5}{7}\underline{b}$