Name: _____ 5-a-day Higher Plus

20th July

Corbettmaths

Convert the following recurring decimal to a fraction

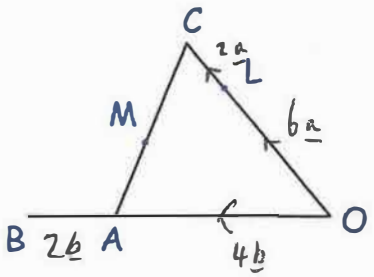
$1.\dot{6}\dot{4}$

$x = 1.646464...$

$100x = 164.6464...$

$99x = 163$

$x = \frac{163}{99}$



$\vec{OC} = 8\mathrm{a}$

$\vec{OA} = 4\mathrm{b}$

$\vec{AB} = 2\mathrm{b}$

$\vec{OL} = 6\mathrm{a}$

$\vec{CA} = -8\underline{a} + 4\underline{b}$

$\vec{CM} = -4\underline{a} + 2\underline{b}$

M is the midpoint of AC

Work out the vector $\vec{LM}$

$\vec{LM} = \vec{LC} + \vec{CM}$

$= 2\underline{a} + (-4\underline{a} + 2\underline{b})$

$= -2\underline{a} + 2\underline{b}$

Show that L, M and B lie on a straight line.

$\vec{MB} = -4\underline{a} + 2\underline{b} + 2\underline{b} = -4\underline{a} + 4\underline{b}$

$\vec{MB} = 2\vec{LM}$ ∴ parallel

as both vectors pass through M, they are co-linear.

Express as a single fraction

$\frac{b}{a} - \frac{a-1}{b+1}$ $\quad \frac{b^2+b}{a(b+1)} - \frac{a^2-a}{a(b+1)}$

$\frac{b^2 + b - a^2 + a}{a(b+1)}$

Write down the coordinates of the minimum point on the curve

$y = x^2 - 6x - 20$

$(x-3)^2 - 9 - 20$

$(x-3)^2 - 29$

$(3, -29)$