


4th June	
<p>The nth term of a sequence is</p> $\frac{3n}{7n-8}$ <p>Write down the limiting value of the sequence $n \rightarrow \infty$</p>	 <p>Corbettmaths</p> $\equiv \frac{3}{7 - \frac{8}{n}} \rightarrow \frac{3}{7}$
<p>Solve</p> $x^{-\frac{2}{5}} = 1\frac{7}{9}$	$x^{-\frac{2}{5}} = \frac{16}{9}$ $x^{\frac{2}{5}} = \frac{9}{16}$ $x = \left(\frac{9}{16}\right)^{\frac{5}{2}} = \frac{243}{1024}$
<p>Work out the values of x between 0° and 360° for which</p> $9\cos x + 4\sin x = 0$	$4\sin x = -9\cos x$ $\tan x = -\frac{9}{4}$ $x = 114.0^\circ, 294.0^\circ$
<p>The transformation matrix M is</p> $\begin{pmatrix} 3 & a \\ -1 & 2 \end{pmatrix}$ <p>The image of the point $(b, -2)$ under M is $(26, -10)$</p> <p>Find a and b</p>	$\begin{pmatrix} 3 & a \\ -1 & 2 \end{pmatrix} \begin{pmatrix} b \\ -2 \end{pmatrix} = \begin{pmatrix} 26 \\ -10 \end{pmatrix}$ $\Rightarrow 3b - 2a = 26$ $-b - 4 = -10 \Rightarrow \underline{b = 6}$ $\underline{a = -4}$
<p>Work out the equation of the tangent to the curve $y = \frac{2}{x}$ at the point $(8, \frac{1}{4})$</p>	$y = 2x^{-1} \Rightarrow \frac{dy}{dx} = -2x^{-2} = -\frac{2}{x^2}$ $x = 8 \Rightarrow \frac{dy}{dx} = -\frac{1}{32}$ <p>Tgt is $y - \frac{1}{4} = -\frac{1}{32}(x - 8)$</p> $\Rightarrow \underline{y = -\frac{1}{32}x + \frac{1}{2}}$