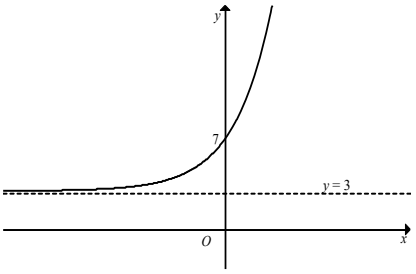
Question	Answer	Marks	Partial Marks
5(a)	$\frac{(5^4)^{\frac{x^3-1}{2}}}{(5^3)^{x^3}} = 5$ oe or $\frac{(25^2)^{\frac{x^3-1}{2}}}{\left(25^{\frac{3}{2}}\right)^{x^3}} = 25^{\frac{1}{2}}$ or $\frac{\left(\sqrt{625}\right)^{x^3} \times 625^{-\frac{1}{2}}}{125^{x^3}} = 5$ or $\log 625^{\frac{x^3-1}{2}} - \log 125^{x^3} = \log 5$ oe	**B1**	converts the terms given to powers of 5 or 25 or separates the power in the numerator correctly or applies a correct log law
	$5^{2x^3-2-3x^3} = 5^1$ oe $\Rightarrow -x^3 - 2 = 1$ oe or $25^{x^3-1-1.5x^3} = 25^{\frac{1}{2}}$ oe $\Rightarrow -0.5x^3 - 1 = 0.5$ oe or $\left(\frac{1}{5}\right)^{x^3} \times \frac{1}{25} = 5$ oe $\Rightarrow x^3 \log\frac{1}{5} = \log 125$ oe or $\frac{x^3-1}{2}\log 625 - x^3 \log 125 = \log 5$ oe	**M1**	**FT** *their* exponential equation in the same base or *their* logarithmic equation with any consistent base, **providing** *their* exponential or logarithmic equation has at most one sign or arithmetic error
	$[x =] \sqrt[3]{-3}$ oe or −1.442249... rot to 3 or more figs.	**A1**	mark final answer; not from wrong working
5(b)		**B2**	**B1** for correct shape; tending to $y = 3$ **B1** for shape with correct curvature and correct intercept of 7 marked or (0, 7) indicated

Question	Answer	Marks	Partial Marks
6(a)	4cos75**i** + 4sin75**j** or 4sin15**i** + 4cos15**j** or 4sin15**i** + 4sin75**j** or 4cos75**i** + 4cos15**j** oe, isw	**B2**	**B1** for $x = 4\cos 75$ or $x = 4\sin 15$ oe, soi or $y = 4\sin 75$ or $y = 4\cos 15$ oe, soi or **B1** for a correct pair of implicit statements for x and y e.g. **both** $\frac{x}{4} = \sin 15$ **and** $\frac{y}{4} = \cos 15$ oe or **both** $\frac{x}{4} = \cos 75$ **and** $\frac{y}{4} = \sin 75$ oe If 0 scored, **SC1** for a correct expression with missing brackets such as $\sqrt{6} - \sqrt{2}\mathbf{i} + \sqrt{6} + \sqrt{2}\mathbf{j}$ or for $\begin{pmatrix} 1.04 \\ 3.86 \end{pmatrix}$ oe