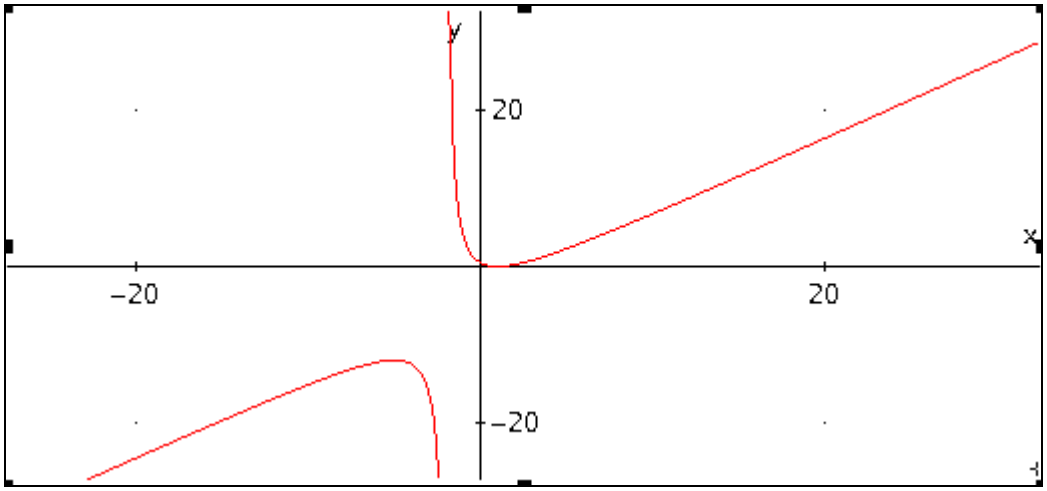
ANSWERS TO SEMESTER ONE EXAMINATION JUNE 2006 (JANUARY 2006 INTAKE)

1	1
2	$\mathbf{p}=\begin{pmatrix}1\\-3\\-1\end{pmatrix}$; $\mathbf{q}=\begin{pmatrix}2\\-1\\-4\end{pmatrix}$; (i) $\mathbf{r}=\begin{pmatrix}1\\2\\3\end{pmatrix}+\lambda\begin{pmatrix}1\\-3\\-1\end{pmatrix}+\mu\begin{pmatrix}2\\-1\\-4\end{pmatrix}$; (ii) $11x+2y+5z=30$
3	i) PROVE ; (ii) PROVE
4	I) Asymptotes : $y=x-4$ and $x=-2$. Minimum Point $(1,0)$; Maximum Point $(-5,-12)$ The curve crosses the axes at points : $(1,0)$.  ii) $(2+k)^2-4(1-2k)\geq 0$; $k\leq -12$ OR $k\geq 0$
5	i) $78.9°$; (ii) $\begin{pmatrix}1\\4\\3\end{pmatrix}$; (iii) $x+4y+3z=16$; (iv) $\begin{pmatrix}2\\1\\5\end{pmatrix}+\lambda\begin{pmatrix}1\\4\\3\end{pmatrix}$; (v) $\left(\frac{47}{26},\frac{6}{26},\frac{115}{26}\right)$; (vi) $\frac{5\sqrt{26}}{26}$
6	$\frac{1}{k(k!)}$
7	$(x^2+2x+2)(3x^2-2x-3)$
8	$y^3+3\lambda y^2+(3\lambda^2+p)y+(\lambda^3+p\lambda+q)=0$; $6\lambda p-3\lambda^3-3q$