

ANSWERS TO SEMESTER ONE EXAMINATION DEC 2010 (JUNE 2010 INTAKE)

1	Prove
2	<p>(i) <math>\frac{n}{2} 54n^2 + 207n + 251 ; 10</math></p> <p>(ii) <math>1 - \frac{1}{n+1!}</math></p>
3	<p>(i) <math>\mathbf{r} = \begin{pmatrix} 3 \\ 1 \\ -1 \end{pmatrix} + \lambda \begin{pmatrix} 1 \\ 2 \\ 3 \end{pmatrix}</math></p> <p>(ii) <math>\mathbf{r} = \begin{pmatrix} 2 \\ 5 \\ 0 \end{pmatrix} + \mu \begin{pmatrix} 1 \\ -1 \\ 1 \end{pmatrix}</math></p> <p>(iii) 4, 3, 2</p> <p>(iv) <math>\frac{1}{4}x + \frac{1}{10}y - \frac{3}{20}z = 1</math></p>
4	<p>(i) <math>y = 2x + 9, x = 3</math></p> <p>(ii) Max: (1, 5) ; Min: (5, 23)</p> <p>(iii)</p> <p>o: Critical points •: Intersection points</p>
5	<p><math>625u^4 - 3561u^3 + 5400u^2 + 4320u + 1296 = 0 ; S_4 = \frac{3561}{625} ; S_8 = \frac{5930721}{390625} ;</math></p> <p><math>S_{-4} = -\frac{10}{3} ; S_{-8} = \frac{25}{9}</math></p>