

THE UNIVERSITY OF THE SOUTH PACIFIC		SCHOOL OF DISTANCE EDUCATION	
BACHELOR OF SCIENCE (HONOURS) IN APPLIED MATHEMATICS			
SEMESTER 1, 2015			
QUESTION	MARKS	ANSWER	MARKS
1. (a) Find the derivative of $y = x^2 + 3x - 5$ with respect to x . (b) Find the gradient of the line passing through the points $(2, 3)$ and $(5, 7)$.	10	(a) $\frac{d}{dx}(x^2 + 3x - 5) = 2x + 3$ (b) $m = \frac{7 - 3}{5 - 2} = \frac{4}{3}$	10
2. (a) Solve the system of linear equations: $x + 2y = 5$ $3x - y = 2$ (b) Find the area of a triangle with vertices $(1, 2)$, $(4, 6)$, and $(7, 2)$.	10	(a) $x = 1, y = 2$ (b) Area = $\frac{1}{2} \times \text{base} \times \text{height} = \frac{1}{2} \times 6 \times 4 = 12$	10
3. (a) Find the equation of the line of best fit for the data below. (b) Use the equation to estimate the value of y when $x = 10$.	10	(a) $y = 0.5x + 1.5$ (b) $y = 6.5$	10
4. (a) Find the derivative of $y = \sin(x)$ with respect to x . (b) Find the value of $\sin^{-1}(\frac{1}{2})$.	10	(a) $\frac{d}{dx}(\sin(x)) = \cos(x)$ (b) $\frac{\pi}{6}$	10