## 東吳大學105學年度轉學生(含進修學士班轉學生)招生考試試題

第1頁,共1頁

資訊管理學系二年級	考試 時間	100	分鐘
微積分	本科 總分	100	分
1. Find the equation of the tangent line at the point (2, 1) for the curve $x^3 - 7 = y^3 + 2x^2y - 8y$ . (10%)			
2. Find the area between the curves $y = x^2 - x + 1$ , $y = x^3 - 2x^2 + x + 1$ . (10%)			
3. Find the locations of the absolute extrema for the function $f(x) = \frac{7x^2 + 3x + 7}{x^2 + 1}$ . (10%)			
4. Find the area of the region between the <i>x</i> -axis and the graph of $f(x) = \frac{\ln x^5}{x}$ from $x = \frac{1}{e}$ to $x = e$ . (10%)			
5. Find all values of x for $f(x) = \sqrt{x^3 - 9x^2 + 15x + 1}$ where the tangent line is horizontal. (10%)			
6. Find the derivative of $y = (8x^4 - 5x^2 + 1)^8$ . (10%)			
7. Find the derivative of $y = (3 + \sqrt{x}) (x + 2)$ (10%)			
8. An analyst has found that a company's costs and revenues in dollars for one product are given by			
$C(x) = 4x^2 - 81x - 500$ and $R(x) = \frac{1}{20}x^2 - 2x$			
<ul> <li>(a) Find the marginal cost function. (5%)</li> <li>(b) Find the marginal profit function. (5%)</li> <li>(c) What value of <i>x</i> makes marginal profit equal 0? (5%)</li> <li>(d) Find the profit when the marginal profit is 0. (5%)</li> </ul>			
etirement saving account contains 300000 and earns 5% interest comp kes continuous withdrawals of 20000 per year. How much will be left %)	ounded in the a	continu ccount a	ously. The retiree after 10 years?
	資訊管理學系二年級 微積分 d the equation of the tangent line at the point (2, 1) for the curve $x^3 - 7$ d the area between the curves $y = x^2 - x + 1$ , $y = x^3 - 2x^2 + x + 1$ . d the locations of the absolute extrema for the function $f(x) = \frac{7x^2 + 3}{x^2 + 4}$ d the area of the region between the <i>x</i> -axis and the graph of $f(x) = \frac{\ln x}{x}$ d all values of <i>x</i> for $f(x) = \sqrt{x^3 - 9x^2 + 15x + 1}$ where the tangent line d the derivative of $y = (8x^4 - 5x^2 + 1)^8$ . (10%) d the derivative of $y = (3 + \sqrt{x})(x + 2)$ (10%) analyst has found that a company's costs and revenues in dollars for or $C(x) = 4x^2 - 81x - 500$ and $R(x) = \frac{1}{20}x^2 - 2x$ a) Find the marginal profit function. (5%) b) Find the marginal profit function. (5%) d) Find the profit when the marginal profit equal 0? (5%) d) Find the profit when the marginal profit is 0. (5%) extrement saving account contains 300000 and earns 5% interest comp kes continuous withdrawals of 20000 per year. How much will be left %)	資訊管理學系二年級考試 時間 本科 總分個積分本科 總分at the equation of the tangent line at the point (2, 1) for the curve $x^3 - 7 = y^3 + 1$ d the area between the curves $y = x^2 - x + 1$ , $y = x^3 - 2x^2 + x + 1$ . (10%)at the locations of the absolute extrema for the function $f(x) = \frac{7x^2 + 3x + 7}{x^2 + 1}$ .(10%)at the area of the region between the x-axis and the graph of $f(x) = \frac{\ln x^5}{x}$ fromfromat all values of x for $f(x) = \sqrt{x^3 - 9x^2 + 15x + 1}$ where the tangent line is horized(10%)at the derivative of $y = (8x^4 - 5x^2 + 1)^8$ . (10%)(10%)at the derivative of $y = (3 + \sqrt{x})(x + 2)$ (10%)(10%)analyst has found that a company's costs and revenues in dollars for one prod $C(x) = 4x^2 - 81x - 500$ and $R(x) = \frac{1}{20}x^2 - 2x$ a) Find the marginal cost function. (5%)(5%)b) Find the marginal profit function. (5%)(5%)c) What value of x makes marginal profit equal 0? (5%)d) Find the profit when the marginal profit is 0. (5%)extrement saving account contains 300000 and earns 5% interest compounded kes continuous withdrawals of 20000 per year. How much will be left in the a %)	資訊管理學系二年級考試100微積分本科100微積分本科100d the equation of the tangent line at the point (2, 1) for the curve $x^3 - 7 = y^3 + 2x^2y - 8$ ,d the area between the curves $y = x^2 - x + 1, y = x^3 - 2x^2 + x + 1.$ (10%)d the locations of the absolute extrema for the function $f(x) = \frac{7x^2 + 3x + 7}{x^2 + 1}$ . (10%)d the area of the region between the x-axis and the graph of $f(x) = \frac{\ln x^5}{x}$ from $x = \frac{1}{e}$ thed all values of x for $f(x) = \sqrt{x^3 - 9x^2 + 15x + 1}$ where the tangent line is horizontal.d the derivative of $y = (8x^4 - 5x^2 + 1)^8$ . (10%)analyst has found that a company's costs and revenues in dollars for one product are g $C(x) = 4x^2 - 81x - 500$ and $R(x) = \frac{1}{20}x^2 - 2x$ a) Find the marginal cost function. (5%)b) Find the marginal profit function. (5%)c) What value of x makes marginal profit equal 0? (5%)d) Find the profit when the marginal profit is 0. (5%)threement saving account contains 300000 and earns 5% interest compounded continues $x^{(1)}$