

Assignment: G15

(1) $\int_0^2 2 - \sqrt{x} dx =$

(10) $\int_1^2 \frac{1}{3x-1} dx$

(2) $\int_0^1 (4x^3 + 1)^3 (6x^2) dx =$

(11) $\int_1^2 \frac{1}{(3x-1)^2} dx =$

(3) $\int_1^2 \frac{(2x)(3x-1)-(x^2)(3)}{(3x-1)^2} dx =$

(12) $\int_0^2 2xe^{x^2+x} + e^{x^2+x} dx =$

(4) $\frac{d}{dx} [3e^{-x^2}]$

(13) $\int \sqrt{\frac{x^{1/3}+1}{x^{4/3}}} dx =$

(5) $\frac{d}{dx} \left[\frac{e^{-x^2}}{e} \right]$

(14) $\int \frac{1}{x^4 \left[\sqrt[3]{\left(\frac{3}{x^3}+3\right)^2} \right]} dx =$

(6) $\frac{d}{dx} \left[\frac{4-x^2}{e^{3x+1}} \right]$

(15) $\int \frac{x}{\sqrt{x^2+1}} dx =$

(7) $\frac{d}{dx} [-xe^{-2x}]$

(16) $\int \frac{8x}{(5-3x^2)^2} dx =$

(8) $\int_0^2 e^{2x} dx =$

(17) $\int_1^e \frac{(\ln x)^3}{2x} dx =$

(9) $\int_1^3 xe^{x^2} dx =$

(18) $\int_1^e \int \frac{\ln x}{x} dx =$

(19) Find the equation of the line tangent to $f(x) = e^{3x}$ at the point (0, 1).(20) Use differentiation to find the maximum and minimum values for $g(x) = \frac{2x}{1+x^2}$ (21) Use differentiation to find the maximum and minimum values for $f(x) = \frac{e^x}{1-x^2}$ (22) Find the area of the region bounded by the x -axis, the curve $y = e^{2x}$, the line $x = 0$ and the line $x = 1$.