MATH 2301 GW33: Integration by Substitution

(Refer to Reference R07: The Method of Integration by Substitution.)

Apply the Method of Substitution to the following integrals.

(**Hint:** One doesn't work!! Can you think of another way to find that integral?)

[1] $\displaystyle\int 3x^2(x^3 - 8)^9 dx$

[2] $\displaystyle\int \frac{3x^2}{(x^3 - 8)^9} dx$

[3] $\displaystyle\int \frac{8x + 48}{\sqrt{x^2 + 12x + 30}} dx$

[4] $\displaystyle\int \frac{3}{4x + 7} dx$

[5] $\displaystyle\int \sin^4(x) \cos(x)\, dx$

[6] $\displaystyle\int \cos(2x + 9)\, dx$

[7] $\displaystyle\int e^{(x^2)} x\, dx$

[8] $\displaystyle\int e^{(x^2)} dx$

[9] $\displaystyle\int_{-\frac{\pi}{2}}^{\pi} \cos^5(x) \sin(x)\, dx$

[10] $\displaystyle\int_{0}^{1} 2x(1 - x^2)^8 dx$