Homework 8.6 – Integration by Substitution

1. (1 pt) alfredLibrary/AUCI/chapter8/lesson6/indefiniteusub5.pg
For the indefinite integral

$$\int x^2 e^{x^3}\,dx,$$

a good choice for a u -substitution is

$u =$ _____

$du =$ _____

After making the substitution into the integral, we have

$\int$ _____ $=$ _____.

Therefore, $\int x^2 e^{x^3}\,dx =$ _____.

2. (1 pt) alfredLibrary/AUCI/chapter8/lesson6/quiz-/indefiniteusub33pet.pg
For the indefinite integral

$$\int \frac{x+5}{x^2+10x+26}\,dx,$$

a good choice for a u -substitution is

$u =$ _____

$du =$ _____

After making the substitution into the integral, we have

$\int$ _____ $=$ _____.

Therefore, $\int \frac{x+5}{x^2+10x+26}\,dx =$ _____.

3. (1 pt) alfredLibrary/AUCI/chapter8/lesson6/definiteusub7.pg
Consider the definite integral $\int_2^5 (2x-2)^2\,dx$.

Then the most appropriate substitution to simplify this integral is

$u =$ _____

$du =$ _____

After making the substitution, changing the limits of integration, and simplifying, we obtain

$\int_2^5 (2x-2)^2\,dx =$ ___$\int$___ _____ $=$ _____ | ___

4. (1 pt) alfredLibrary/AUCI/chapter8/lesson6/definiteusub6.pg
Consider the definite integral $\int_1^4 x^2(2+3x^3)^3\,dx$.

Then the most appropriate substitution to simplify this integral is

$u =$ _____

$du =$ _____

After making the substitution, changing the limits of integration, and simplifying, we obtain

$\int_1^4 x^2(2+3x^3)^3\,dx =$ ___$\int$___ _____ $=$ _____ |

5. (1 pt) alfredLibrary/AUCI/chapter8/lesson6/definiteusub34pet.pg
Evaluate the definite integral using an appropriate u-substitution.

$\int_0^{\pi/2} e^{\sin(7x)}\cos(7x)\,dx =$ _____