Name : _____ Score : _____

Teacher : _____ Date : _____

Integration by Substitution

Find each indefinite integral using substitution.

1) $\int \left(\frac{-(5e^{-5x})}{\csc(e^{-5x} + 16)}\right)dx$; $u = e^{-5x} + 16$

2) $\int ((20e^{-4x})\cos(e^{-4x} + 20))dx$; $u = e^{-4x} + 20$

3) $\int (-(30e^{5x})\sin(e^{5x} - 12))dx$; $u = e^{5x} - 12$

4) $\int ((-6e^{3x})\cot(e^{3x} + 10))dx$; $u = e^{3x} + 10$

5) $\int \left(\frac{e^{x}}{\sec(e^{x} + 1)}\right)dx$; $u = e^{x} + 1$

Name : _____ Score : _____

Teacher : _____ Date : _____

Integration by Substitution

Find each indefinite integral using substitution.

1) $\int \left(\frac{-(5e^{-5x})}{\csc(e^{-5x}+16)}\right)dx$; $u = e^{-5x} + 16$

$-\cos(e^{-5x} + 16) + C$

2) $\int ((20e^{-4x})\cos(e^{-4x} + 20))dx$; $u = e^{-4x} + 20$

$-5\sin(e^{-4x} + 20) + C$

3) $\int (-(30e^{5x})\sin(e^{5x} - 12))dx$; $u = e^{5x} - 12$

$6\cos(e^{5x} - 12) + C$

4) $\int ((-6e^{3x})\cot(e^{3x} + 10))dx$; $u = e^{3x} + 10$

$-2\ln|\sin(e^{3x} + 10)| + C$

5) $\int \left(\frac{e^{x}}{\sec(e^{x}+1)}\right)dx$; $u = e^{x} + 1$

$\sin(e^{x} + 1) + C$