Name : _____ Score : _____

Teacher : _____ Date : _____

Integration by Substitution

Find each indefinite integral using substitution.

1) $\int \left(\frac{-(2x - 18)}{\csc (x^2 - 18x)}\right)dx$; $u = x^2 - 18x$

2) $\int ((5e^{5x})\cos (e^{5x} - 6))dx$; $u = e^{5x} - 6$

3) $\int (-(12e^{6x})\tan (e^{6x} + 16))dx$; $u = e^{6x} + 16$

4) $\int \left(\frac{-162x^2 - 36}{\sec (-6x^3 - 4x)}\right)dx$; $u = -6x^3 - 4x$

5) $\int ((12x^2 - 10)\sin (-4x^3 - 10x))dx$; $u = -4x^3 - 10x$

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Integration by Substitution

Find each indefinite integral using substitution.

1) $\int \left(\frac{-(2x - 18)}{\csc (x^2 - 18x)}\right)dx$; $u = x^2 - 18x$

$\cos (x^2 - 18x) + C$

2) $\int ((5e^{5x})\cos (e^{5x} - 6))dx$; $u = e^{5x} - 6$

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

3) $\int (-(12e^{6x})\tan (e^{6x} + 16))dx$; $u = e^{6x} + 16$

$2\ln|\cos (e^{6x} + 16)| + C$

4) $\int \left(\frac{-162x^2 - 36}{\sec (-6x^3 - 4x)}\right)dx$; $u = -6x^3 - 4x$

$9\sin (-6x^3 - 4x) + C$

5) $\int ((12x^2 - 10)\sin (-4x^3 - 10x))dx$; $u = -4x^3 - 10x$

$\cos (-4x^3 - 10x) + C$