MATH 211: Calculus I F23 TQ LT18

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LT18: I can use the substitution method to evaluate indefinite integrals.

1. Find the general antiderivative, $F(x)$, of each function. *Note: you may check your answer by taking its derivative.*

(a) $\int \cos(5x)dx$

$= \frac{1}{5}\sin(5x) + C$

e^{3x} e^{x}

(b) $\int e^{2x+1}dx$

$u = 2x+1$

$du = 2dx$

e^u

$\int e^u \, du$

$= \frac{1}{2}e^{2x+1} + C$

✓

(c) $\int \frac{1}{3x-2}dx$

$u = 3x-2$

$du = 3dx$

$= \frac{1}{3}\ln(3x-2) + C$