Name_____

Integration by Substitution

Date_____ Period_____

Evaluate each indefinite integral. Use the provided substitution.

1) $\int -15x^4(-3x^5 - 1)^5 \, dx; \ u = -3x^5 - 1$

2) $\int -16x^3(-4x^4 - 1)^{-5} \, dx; \ u = -4x^4 - 1$

3) $\int -\dfrac{8x^3}{(-2x^4 + 5)^5} \, dx; \ u = -2x^4 + 5$

4) $\int (5x^4 + 5)^{\frac{2}{3}} \cdot 20x^3 \, dx; \ u = 5x^4 + 5$

5) $\int \dfrac{(5 + \ln x)^5}{x} \, dx; \ u = 5 + \ln x$

6) $\int 4\sec 4x \cdot \tan 4x \cdot \sec^4 4x \, dx; \ u = \sec 4x$

7) $\int 36x^3(3x^4 + 3)^5 \, dx; \ u = 3x^4 + 3$

8) $\int x(4x - 1)^4 \, dx; \ u = 4x - 1$

Evaluate each indefinite integral.

9) $\int -9x^2(-3x^3 + 1)^3 \, dx$

10) $\int 12x^3(3x^4 + 4)^4 \, dx$

11) $\int -12x^2(-4x^3 + 2)^{-3} \, dx$

12) $\int (3x^5 - 3)^{\frac{3}{5}} \cdot 15x^4 \, dx$

13) $\int (-2x^4 - 4)^4 \cdot -32x^3 \, dx$

14) $\int (e^{4x} - 4)^{\frac{1}{5}} \cdot 8e^{4x} \, dx$

15) $\int x(4x + 5)^3 \, dx$

16) $\int 5x\sqrt{2x + 3} \, dx$