Candle Center - Infinite Calculus Name_____

Integration by Substitution

Date_____ Period____

Evaluate each indefinite integral. Use the provided substitution.

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

2) $\int 36x^2 e^{4x^3 + 3}\, dx;\ u = 4x^3 + 3$

3) $\int 80x^3 \cdot 3^{5x^4 - 2}\, dx;\ u = 5x^4 - 2$

4) $\int \frac{2}{x(-1 + \ln 4x)}\, dx;\ u = -1 + \ln 4x$

Evaluate each indefinite integral.

5) $\int \frac{12x^2}{x^3 + 2}\, dx$

6) $\int \frac{20e^{5x}}{e^{5x} + 3}\, dx$

7) $\int 10\sin -2x \cdot e^{\cos -2x}\, dx$

8) $\int \frac{5e^{-3 + \ln 3x}}{x}\, dx$

Candle Center - Infinite Calculus Name_____

Integration by Substitution

Date_____ Period____

Evaluate each indefinite integral. Use the provided substitution.

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

$\ln\left|4x^5+3\right| + C$

2) $\int 36x^2 e^{4x^3+3}\,dx;\ u = 4x^3+3$

$3e^{4x^3+3} + C$

3) $\int 80x^3 \cdot 3^{5x^4-2}\,dx;\ u = 5x^4-2$

$\frac{4 \cdot 3^{5x^4-2}}{\ln 3} + C$

4) $\int \frac{2}{x(-1+\ln 4x)}\,dx;\ u = -1+\ln 4x$

$2\ln\left|-1+\ln 4x\right| + C$

Evaluate each indefinite integral.

5) $\int \frac{12x^2}{x^3+2}\,dx$

$4\ln\left|2x^3+4\right| + C$

6) $\int \frac{20e^{5x}}{e^{5x}+3}\,dx$

$4\ln\left|e^{5x}+3\right| + C$

7) $\int 10\sin -2x \cdot e^{\cos -2x}\,dx$

$5e^{\cos -2x} + C$

8) $\int \frac{5e^{-3+\ln 3x}}{x}\,dx$

$5e^{-3+\ln 3x} + C$