Name_____

Calculus Practice: Techniques for Finding Antiderivatives 16b

Evaluate each indefinite integral. Use the provided substitution.

1) $\displaystyle\int \frac{5\cos 5x}{4 + \sin^2 5x}\, dx; \quad u = \sin 5x$

2) $\displaystyle\int \frac{2\sin -2x}{25 + \cos^2 -2x}\, dx; \quad u = \cos -2x$

3) $\displaystyle\int -\frac{4\csc 4x\cot 4x}{\sqrt{25 - \csc^2 4x}}\, dx; \quad u = \csc 4x$

4) $\displaystyle\int -\frac{5\csc^2 5x}{\sqrt{9 - \cot^2 5x}}\, dx; \quad u = \cot 5x$

5) $\displaystyle\int \frac{2\sin -2x}{\cos -2x \cdot \sqrt{\cos^2 -2x - 25}}\, dx; \quad u = \cos -2x$

6) $\displaystyle\int -\frac{5\sec^2 -5x}{16 + \tan^2 -5x}\, dx; \quad u = \tan -5x$

7) $\int \dfrac{\csc -x \cot -x}{9 + \csc^2 -x}\, dx; \quad u = \csc -x$

8) $\int -\dfrac{4\sec^2 -4x}{\sqrt{1 - \tan^2 -4x}}\, dx; \quad u = \tan -4x$

9) $\int \dfrac{2\csc -2x \cot -2x}{16 + \csc^2 -2x}\, dx; \quad u = \csc -2x$

10) $\int \dfrac{4\cos 4x}{9 + \sin^2 4x}\, dx; \quad u = \sin 4x$

11) $\int -\dfrac{5\csc 5x \cot 5x}{\sqrt{16 - \csc^2 5x}}\, dx; \quad u = \csc 5x$

12) $\int \dfrac{3\sin -3x}{4 + \cos^2 -3x}\, dx; \quad u = \cos -3x$

13) $\int -\dfrac{2\cos -2x}{\sqrt{1 - \sin^2 -2x}}\, dx; \quad u = \sin -2x$

14) $\int \dfrac{4\cos 4x}{4 + \sin^2 4x}\, dx; \quad u = \sin 4x$

Name_____

Calculus Practice: Techniques for Finding Antiderivatives 16b

Evaluate each indefinite integral. Use the provided substitution.

1) $\int \dfrac{5\cos 5x}{4 + \sin^2 5x}\, dx;\ \ u = \sin 5x$

$\dfrac{1}{2} \cdot \tan^{-1} \dfrac{\sin 5x}{2} + C$

2) $\int \dfrac{2\sin -2x}{25 + \cos^2 -2x}\, dx;\ \ u = \cos -2x$

$\dfrac{1}{5} \cdot \tan^{-1} \dfrac{\cos -2x}{5} + C$

3) $\int -\dfrac{4\csc 4x \cot 4x}{\sqrt{25 - \csc^2 4x}}\, dx;\ \ u = \csc 4x$

$\sin^{-1} \dfrac{\csc 4x}{5} + C$

4) $\int -\dfrac{5\csc^2 5x}{\sqrt{9 - \cot^2 5x}}\, dx;\ \ u = \cot 5x$

$\sin^{-1} \dfrac{\cot 5x}{3} + C$

5) $\int \dfrac{2\sin -2x}{\cos -2x \cdot \sqrt{\cos^2 -2x - 25}}\, dx;\ \ u = \cos -2x$

$\dfrac{1}{5} \cdot \sec^{-1} \dfrac{\left| \cos -2x \right|}{5} + C$

6) $\int -\dfrac{5\sec^2 -5x}{16 + \tan^2 -5x}\, dx;\ \ u = \tan -5x$

$\dfrac{1}{4} \cdot \tan^{-1} \dfrac{\tan -5x}{4} + C$

7) $\int \dfrac{\csc -x \cot -x}{9 + \csc^2 -x}\, dx; \quad u = \csc -x$

$\dfrac{1}{3} \cdot \tan^{-1} \dfrac{\csc -x}{3} + C$

8) $\int -\dfrac{4\sec^2 -4x}{\sqrt{1 - \tan^2 -4x}}\, dx; \quad u = \tan -4x$

$\sin^{-1}\left(\tan -4x\right) + C$

9) $\int \dfrac{2\csc -2x \cot -2x}{16 + \csc^2 -2x}\, dx; \quad u = \csc -2x$

$\dfrac{1}{4} \cdot \tan^{-1} \dfrac{\csc -2x}{4} + C$

10) $\int \dfrac{4\cos 4x}{9 + \sin^2 4x}\, dx; \quad u = \sin 4x$

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