

Calculus Practice: Techniques for Finding Antiderivatives 10b

Evaluate each indefinite integral. Use the provided substitution.

1) $\int \frac{5\csc^2(-4 + \ln -3x)}{x} dx; u = -4 + \ln -3x$

2) $\int \frac{3\csc^2(5 + \ln -3x)}{x} dx; u = 5 + \ln -3x$

3) $\int -\frac{2\csc^2(5 + \ln 3x)}{x} dx; u = 5 + \ln 3x$

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

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

6) $\int \frac{\cot(5 + \ln 5x)}{x} dx; u = 5 + \ln 5x$

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

8) $\int -\frac{5\tan(3 + \ln x)}{x} dx; u = 3 + \ln x$

9) $\int \frac{3\csc(-5 + \ln 2x)}{x} dx; u = -5 + \ln 2x$

10) $\int -\frac{4\sec(5 + \ln 3x)}{x} dx; u = 5 + \ln 3x$

$$11) \int -\frac{1}{x \csc(-1 + \ln 4x)} dx; u = -1 + \ln 4x$$

$$12) \int -\frac{5 \sin(-3 + \ln -4x)}{x \cos^2(-3 + \ln -4x)} dx; u = -3 + \ln -4x$$

$$13) \int \frac{\sin(1 + \ln 5x)}{x \cos^2(1 + \ln 5x)} dx; u = 1 + \ln 5x$$

$$14) \int \frac{\cos(5 + \ln 4x)}{x \sin^2(5 + \ln 4x)} dx; u = 5 + \ln 4x$$

$$15) \int -\frac{4 \cos(-3 + \ln x)}{x \sin^2(-3 + \ln x)} dx; u = -3 + \ln x$$

$$16) \int \frac{4 \cos(4 + \ln -2x)}{x \sin(4 + \ln -2x)} dx; u = 4 + \ln -2x$$

$$17) \int -\frac{2 \sin(5 + \ln -5x)}{x \cos(5 + \ln -5x)} dx; u = 5 + \ln -5x$$

$$18) \int \frac{1}{x \sin(-3 + \ln -x)} dx; u = -3 + \ln -x$$

$$19) \int -\frac{4}{x \sin(3 + \ln -3x)} dx; u = 3 + \ln -3x$$

$$20) \int -\frac{4 \cos(2 + \ln -x)}{x \sin(2 + \ln -x)} dx; u = 2 + \ln -x$$

Calculus Practice: Techniques for Finding Antiderivatives 10b

Evaluate each indefinite integral. Use the provided substitution.

1) $\int \frac{5\csc^2(-4 + \ln -3x)}{x} dx; u = -4 + \ln -3x$

$$-5\cot(-4 + \ln -3x) + C$$

2) $\int \frac{3\csc^2(5 + \ln -3x)}{x} dx; u = 5 + \ln -3x$

$$-3\cot(5 + \ln -3x) + C$$

3) $\int -\frac{2\csc^2(5 + \ln 3x)}{x} dx; u = 5 + \ln 3x$

$$2\cot(5 + \ln 3x) + C$$

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

$$-2\cos(4 + \ln -x) + C$$

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

$$\tan(-1 + \ln 4x) + C$$

6) $\int \frac{\cot(5 + \ln 5x)}{x} dx; u = 5 + \ln 5x$

$$\ln |\sin(5 + \ln 5x)| + C$$

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

$$-\ln |\sec(4 + \ln 2x)| + C$$

8) $\int -\frac{5\tan(3 + \ln x)}{x} dx; u = 3 + \ln x$

$$-5\ln |\sec(3 + \ln x)| + C$$

9) $\int \frac{3\csc(-5 + \ln 2x)}{x} dx; u = -5 + \ln 2x$

$$3\ln |\csc(-5 + \ln 2x) - \cot(-5 + \ln 2x)| + C$$

10) $\int -\frac{4\sec(5 + \ln 3x)}{x} dx; u = 5 + \ln 3x$

$$-4\ln |\sec(5 + \ln 3x) + \tan(5 + \ln 3x)| + C$$

$$11) \int -\frac{1}{x \csc(-1 + \ln 4x)} dx; u = -1 + \ln 4x$$

$$\cos(-1 + \ln 4x) + C$$

$$12) \int -\frac{5 \sin(-3 + \ln -4x)}{x \cos^2(-3 + \ln -4x)} dx; u = -3 + \ln -4x$$

$$-5 \sec(-3 + \ln -4x) + C$$

$$13) \int \frac{\sin(1 + \ln 5x)}{x \cos^2(1 + \ln 5x)} dx; u = 1 + \ln 5x$$

$$\sec(1 + \ln 5x) + C$$

$$14) \int \frac{\cos(5 + \ln 4x)}{x \sin^2(5 + \ln 4x)} dx; u = 5 + \ln 4x$$

$$-\csc(5 + \ln 4x) + C$$

$$15) \int -\frac{4 \cos(-3 + \ln x)}{x \sin^2(-3 + \ln x)} dx; u = -3 + \ln x$$

$$4 \csc(-3 + \ln x) + C$$

$$16) \int \frac{4 \cos(4 + \ln -2x)}{x \sin(4 + \ln -2x)} dx; u = 4 + \ln -2x$$

$$4 \ln |\sin(4 + \ln -2x)| + C$$

$$17) \int -\frac{2 \sin(5 + \ln -5x)}{x \cos(5 + \ln -5x)} dx; u = 5 + \ln -5x$$

$$-2 \ln |\sec(5 + \ln -5x)| + C$$

$$18) \int \frac{1}{x \sin(-3 + \ln -x)} dx; u = -3 + \ln -x$$

$$\ln |\csc(-3 + \ln -x) - \cot(-3 + \ln -x)| + C$$

$$19) \int -\frac{4}{x \sin(3 + \ln -3x)} dx; u = 3 + \ln -3x$$

$$-4 \ln |\csc(3 + \ln -3x) - \cot(3 + \ln -3x)| + C$$

$$20) \int -\frac{4 \cos(2 + \ln -x)}{x \sin(2 + \ln -x)} dx; u = 2 + \ln -x$$

$$-4 \ln |\sin(2 + \ln -x)| + C$$