Calculus Practice: Techniques for Finding Antiderivatives 2b

Evaluate each indefinite integral. Use the provided substitution.

1) $\int \frac{3(-4 + \ln -3t)^3}{t}\, dt;\ u = -4 + \ln -3t$

2) $\int \frac{3(1 + \ln 5t)^5}{t}\, dt;\ u = 1 + \ln 5t$

3) $\int \frac{3(-4 + \ln 5t)^5}{t}\, dt;\ u = -4 + \ln 5t$

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

5) $\int \frac{4(5 + \ln -2t)^3}{t}\, dt;\ u = 5 + \ln -2t$

6) $\int \frac{3(-1 + \ln -4t)^4}{t}\, dt;\ u = -1 + \ln -4t$

7) $\int \frac{2(4 + \ln 5s)^5}{s}\, ds;\ u = 4 + \ln 5s$

8) $\int \frac{5(2 + \ln -5s)^4}{s}\, ds;\ u = 2 + \ln -5s$

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

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

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

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

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

14) $\int \frac{4}{x(-5 + \ln\ -4x)^5}\, dx;\ u = -5 + \ln\ -4x$

15) $\int \frac{5(2 + \ln\ x)^{\frac{1}{2}}}{x}\, dx;\ u = 2 + \ln\ x$

16) $\int \frac{4\sqrt[3]{5 + \ln\ 2x}}{x}\, dx;\ u = 5 + \ln\ 2x$

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

18) $\int \frac{3\sqrt[3]{4 + \ln\ x}}{x}\, dx;\ u = 4 + \ln\ x$

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

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

Calculus Practice: Techniques for Finding Antiderivatives 2b

Evaluate each indefinite integral. Use the provided substitution.

1) $\int \frac{3(-4 + \ln -3t)^3}{t}\, dt;\ u = -4 + \ln -3t$

$\frac{3}{4}(-4 + \ln -3t)^4 + C$

2) $\int \frac{3(1 + \ln 5t)^5}{t}\, dt;\ u = 1 + \ln 5t$

$\frac{1}{2}(1 + \ln 5t)^6 + C$

3) $\int \frac{3(-4 + \ln 5t)^5}{t}\, dt;\ u = -4 + \ln 5t$

$\frac{1}{2}(-4 + \ln 5t)^6 + C$

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

$\frac{5}{6}(-5 + \ln -4x)^6 + C$

5) $\int \frac{4(5 + \ln -2t)^3}{t}\, dt;\ u = 5 + \ln -2t$

$(5 + \ln -2t)^4 + C$

6) $\int \frac{3(-1 + \ln -4t)^4}{t}\, dt;\ u = -1 + \ln -4t$

$\frac{3}{5}(-1 + \ln -4t)^5 + C$

7) $\int \frac{2(4 + \ln 5s)^5}{s}\, ds;\ u = 4 + \ln 5s$

$\frac{1}{3}(4 + \ln 5s)^6 + C$

8) $\int \frac{5(2 + \ln -5s)^4}{s}\, ds;\ u = 2 + \ln -5s$

$(2 + \ln -5s)^5 + C$

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

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

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

$-\frac{2}{(-2 + \ln -x)^2} + C$

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

$-\frac{3}{2(5+\ln 2x)^2}+C$

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

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

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

$-\frac{1}{(-4+\ln 5x)^3}+C$

14) $\int \frac{4}{x(-5+\ln -4x)^5}\,dx;\ u = -5+\ln -4x$

$-\frac{1}{(-5+\ln -4x)^4}+C$

15) $\int \frac{5(2+\ln x)^{\frac{1}{2}}}{x}\,dx;\ u = 2+\ln x$

$\frac{10}{3}(2+\ln x)^{\frac{3}{2}}+C$

16) $\int \frac{4\sqrt[3]{5+\ln 2x}}{x}\,dx;\ u = 5+\ln 2x$

$3(5+\ln 2x)^{\frac{4}{3}}+C$

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

$\frac{12}{5}(3+\ln -2x)^{\frac{5}{4}}+C$

18) $\int \frac{3\sqrt[3]{4+\ln x}}{x}\,dx;\ u = 4+\ln x$

$\frac{9}{4}(4+\ln x)^{\frac{4}{3}}+C$

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

$\frac{15}{4}(2+\ln -4x)^{\frac{4}{3}}+C$

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

$\frac{8}{5}(2+\ln 3x)^{\frac{5}{2}}+C$