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Calculus Practice: Techniques for Finding Antiderivatives 15b

Evaluate each indefinite integral. Use the provided substitution.

1) $\int \frac{2e^{2x}}{25 + e^{4x}}\, dx;\ u = e^{2x}$

2) $\int \frac{5e^{5x}}{e^{5x}\sqrt{e^{10x} - 4}}\, dx;\ u = e^{5x}$

3) $\int \frac{5e^{5x}}{e^{5x}\sqrt{e^{10x} - 9}}\, dx;\ u = e^{5x}$

4) $\int \frac{5e^{5x}}{\sqrt{1 - e^{10x}}}\, dx;\ u = e^{5x}$

5) $\int \frac{2e^{2x}}{e^{2x}\sqrt{e^{4x} - 1}}\, dx;\ u = e^{2x}$

6) $\int \frac{5e^{5x}}{16 + e^{10x}}\, dx;\ u = e^{5x}$

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7) $\int \frac{3e^{3x}}{e^{3x}\sqrt{e^{6x}-25}}\,dx;\ u=e^{3x}$

8) $\int \frac{5e^{5x}}{4+e^{10x}}\,dx;\ u=e^{5x}$

9) $\int \frac{3e^{3x}}{\sqrt{16-e^{6x}}}\,dx;\ u=e^{3x}$

10) $\int \frac{5e^{5x}}{25+e^{10x}}\,dx;\ u=e^{5x}$

11) $\int \frac{4e^{4x}}{e^{4x}\sqrt{e^{8x}-16}}\,dx;\ u=e^{4x}$

12) $\int \frac{2e^{2x}}{16+e^{4x}}\,dx;\ u=e^{2x}$

13) $\int \frac{4e^{4x}}{e^{4x}\sqrt{e^{8x}-9}}\,dx;\ u=e^{4x}$

14) $\int \frac{4e^{4x}}{16+e^{8x}}\,dx;\ u=e^{4x}$

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Calculus Practice: Techniques for Finding Antiderivatives 15b

Evaluate each indefinite integral. Use the provided substitution.

1) $\int \frac{2e^{2x}}{25 + e^{4x}}\, dx;\ u = e^{2x}$

$\frac{1}{5} \cdot \tan^{-1} \frac{e^{2x}}{5} + C$

2) $\int \frac{5e^{5x}}{e^{5x}\sqrt{e^{10x} - 4}}\, dx;\ u = e^{5x}$

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

3) $\int \frac{5e^{5x}}{e^{5x}\sqrt{e^{10x} - 9}}\, dx;\ u = e^{5x}$

$\frac{1}{3} \cdot \sec^{-1} \frac{\left|e^{5x}\right|}{3} + C$

4) $\int \frac{5e^{5x}}{\sqrt{1 - e^{10x}}}\, dx;\ u = e^{5x}$

$\sin^{-1} e^{5x} + C$

5) $\int \frac{2e^{2x}}{e^{2x}\sqrt{e^{4x} - 1}}\, dx;\ u = e^{2x}$

$\sec^{-1} \left|e^{2x}\right| + C$

6) $\int \frac{5e^{5x}}{16 + e^{10x}}\, dx;\ u = e^{5x}$

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

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7) $\int \frac{3e^{3x}}{e^{3x}\sqrt{e^{6x} - 25}}\, dx;\ u = e^{3x}$

$\frac{1}{5} \cdot \sec^{-1} \frac{|e^{3x}|}{5} + C$

8) $\int \frac{5e^{5x}}{4 + e^{10x}}\, dx;\ u = e^{5x}$

$\frac{1}{2} \cdot \tan^{-1} \frac{e^{5x}}{2} + C$

9) $\int \frac{3e^{3x}}{\sqrt{16 - e^{6x}}}\, dx;\ u = e^{3x}$

$\sin^{-1} \frac{e^{3x}}{4} + C$

10) $\int \frac{5e^{5x}}{25 + e^{10x}}\, dx;\ u = e^{5x}$

$\frac{1}{5} \cdot \tan^{-1} \frac{e^{5x}}{5} + C$

11) $\int \frac{4e^{4x}}{e^{4x}\sqrt{e^{8x} - 16}}\, dx;\ u = e^{4x}$

$\frac{1}{4} \cdot \sec^{-1} \frac{|e^{4x}|}{4} + C$

12) $\int \frac{2e^{2x}}{16 + e^{4x}}\, dx;\ u = e^{2x}$

$\frac{1}{4} \cdot \tan^{-1} \frac{e^{2x}}{4} + C$

13) $\int \frac{4e^{4x}}{e^{4x}\sqrt{e^{8x} - 9}}\, dx;\ u = e^{4x}$

$\frac{1}{3} \cdot \sec^{-1} \frac{|e^{4x}|}{3} + C$

14) $\int \frac{4e^{4x}}{16 + e^{8x}}\, dx;\ u = e^{4x}$

$\frac{1}{4} \cdot \tan^{-1} \frac{e^{4x}}{4} + C$

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