Principles of Calculus Modeling: An Interactive Approach by Donald Kreider, Dwight Lahr, and Susan Diesel
Exercises for Section 4.5

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1. (1 pt)
Evaluate the integral
$$\int_1^{\sqrt{e}} \frac{10\cos(\pi \ln x)}{x}\,dx$$

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2. (1 pt)
Evaluate the integral
$$\int_e^{e^7} \frac{9}{t\ln t}\,dt$$

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3. (1 pt)
Evaluate the indefinite integral
$$\int x\cos \pi x\,dx$$
Use any number as your constant of integration.

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4. (1 pt)
Evaluate the indefinite integral
$$\int (x+11)e^{11x}\,dx$$
Use any number as your constant of integration.

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5. (1 pt)
Evaluate the indefinite integral
$$\int 9x^2 \ln x\,dx$$
Use any number as your constant of integration.

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6. (1 pt)
Evaluate the following indefinite integral:
$$\int \sin^{-1}(4x)\,dx$$
Use any number as your constant of integration.

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7. (1 pt)
Evaluate the indefinite integral
$$\int \cos(-10x)\sin^{12} -10x\,dx$$
Use any number as your constant of integration.

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8. (1 pt)
Evaluate the indefinite integral
$$\int \frac{\left(12+\sqrt{-8x}\right)^4}{8\sqrt{-8x}}\,dx$$
Use any number as your constant of integration.

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9. (1 pt)
Evaluate the indefinite integral
$$\int \cos(e^x)e^x - e^{12x}\,dx$$
Use any number as your constant of integration.

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10. (1 pt)
Evaluate the indefinite integral
$$\int (x^5)e^{x^2}\,dx$$
Use any number as your constant of integration.

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11. (1 pt)
Evaluate the indefinite integral
$$\int \frac{x}{\sqrt{x+1}}\,dx$$
Use any number as your constant of integration.

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12. (1 pt)
Evaluate the indefinite integral
$$\int x(x-3)^{13}\,dx$$
Use any number as your constant of integration.

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13. (1 pt)
Evaluate the indefinite integral
$$\int xe^{14x}\,dx$$
Use any number as your constant of integration.

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14. (1 pt)
Evaluate the indefinite integral
$$\int x^{10}\ln(x)\,dx$$
Use any number as your constant of integration.

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15. (1 pt)
What is $\int_0^{\frac{\pi}{2}} (\sin x)^6\,dx$?

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16. (1 pt)
What is $\int (x^{13}e^x)\,dx - 156\int x^{11}e^x\,dx$?
Use any number as your constant of integration.

17. (1 pt)

Consider $\int_{-2}^{7} x\cos(2x)\,dx$.

First, what are good choices for u and dv?

u = _____

dv = _____

Now calculate v and du.

v = _____

du = _____

Finally, what is the value of the integral?

_____

18. (1 pt)

Use substitution to evaluate the integral $\int_{-1}^{2} 4x^3 e^{x^4}\,dx$.

_____

19. (1 pt)

Use substitution to evaluate the integral $\int_{1}^{3} x^{15}\sin(x^{16})\,dx$.

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20. (1 pt)

Find the indefinite integral $\int \frac{(\ln x)^6}{x}\,dx$. Use any number as your constant of integration.

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21. (1 pt)

What is $\int_{0}^{\frac{\pi}{2}} \cos(x)\sin(\sin(x))dx$?

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