Stewart Review

9–34 ■ Evaluate the integral, if it exists.

9. $\int_1^2 (8x^3 + 3x^2)\,dx$

10. $\int_0^T (x^4 - 8x + 7)\,dx$

11. $\int_0^1 (1 - x^9)\,dx$

12. $\int_0^1 (1 - x)^9\,dx$

13. $\int_1^8 \sqrt[3]{x}\,(x - 1)\,dx$

14. $\int_1^4 \dfrac{x^2 - x + 1}{\sqrt{x}}\,dx$

15. $\int_0^1 \dfrac{x}{x^2 + 1}\,dx$

16. $\int_0^1 \dfrac{1}{x^2 + 1}\,dx$

17. $\int_0^2 x^2(1 + 2x^3)^3\,dx$

18. $\int_0^4 x\sqrt{16 - 3x}\,dx$

19. $\int_0^1 e^{\pi t}\,dt$

20. $\int_1^2 x^3 \ln x\,dx$

21. $\int x \sec x \tan x\,dx$

22. $\int_1^2 \dfrac{1}{2 - 3x}\,dx$

23. $\int \dfrac{\cos(1/t)}{t^2}\,dt$

24. $\int \sin x \cos(\cos x)\,dx$

25. $\int \dfrac{6x + 1}{3x + 2}\,dx$

26. $\int x \cos 3x\,dx$

27. $\int x^2 e^{-x}\,dx$

28. $\int \sin^4\theta \cos^3\theta\,d\theta$

29. $\int \dfrac{dt}{t^2 + 6t + 8}$

30. $\int \dfrac{x}{\sqrt{1 - x^4}}\,dx$

31. $\int_0^3 x^3\sqrt{9 - x^2}\,dx$

32. $\int \tan^{-1}x\,dx$

33. $\int \dfrac{\sec\theta \tan\theta}{1 + \sec\theta}\,d\theta$

34. $\int_{-1}^1 \dfrac{\sin x}{1 + x^2}\,dx$

Anton Review

Consider the following methods for evaluating integrals: u-substitution, integration by parts, partial fractions, reduction formulas, and trigonometric substitutions. In each part, state the approach that you would try first to evaluate the integral. If none of them seems appropriate, then say so. You need not evaluate the integral.

(a) $\int x \sin x\,dx$

(b) $\int \cos x \sin x\,dx$

(c) $\int \tan^7 x\,dx$

(d) $\int \tan^7 x \sec^2 x\,dx$

(e) $\int \dfrac{3x^2}{x^3 + 1}\,dx$

(f) $\int \dfrac{3x^2}{(x + 1)^3}\,dx$

(g) $\int \tan^{-1} x\,dx$

(h) $\int \sqrt{4 - x^2}\,dx$

(i) $\int x\sqrt{4 - x^2}\,dx$