Assignment#1 Indefinite Integrals

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Find the antiderivatives of questions 2,4,6,8,10,12,14,16
You do not have to show me that you checked your answers by taking the derivative.

The assignment should be completed and sent to by April 30/20.

Make sure you show all work and your answers are neat and clear.

4.10 Exercises

1–16 □ Find the most general antiderivative of the function. (Check your answer by differentiation.)

1. $f(x) = 6x^2 - 8x + 3$
2. $f(x) = 4 + x^2 - 5x^3$
3. $f(x) = 1 - x^3 + 5x^5 - 3x^7$
4. $f(x) = x^{20} + 4x^{10} + 8$
5. $f(x) = 5x^{1/4} - 7x^{3/4}$
6. $f(x) = 2x + 3x^{1.7}$
7. $f(x) = \sqrt{x} + \sqrt[3]{x}$
8. $f(x) = \sqrt[3]{x^2} - \sqrt{x^3}$
9. $f(x) = \dfrac{10}{x^9}$
10. $f(x) = \dfrac{3}{x^2} - \dfrac{5}{x^4}$
11. $g(t) = \dfrac{t^3 + 2t^2}{\sqrt{t}}$
12. $f(x) = 3e^x + 7\sec^2 x$
13. $f(t) = 3\cos t - 4\sin t$
14. $f(\theta) = e^\theta + \sec\theta\tan\theta$
15. $f(x) = 2x + 5(1 - x^2)^{-1/2}$
16. $f(x) = \dfrac{x^2 + x + 1}{x}$

17–18 □ Find the antiderivative F of f that satisfies the given condition. Check your answer by comparing the graphs of f and F.

17. $f(x) = 5x^4 - 2x^5, \quad F(0) = 4$
18. $f(x) = 4 - 3(1 + x^2)^{-1}, \quad F(1) = 0$

Answers

Exercises 4.10 □ page 356

1. $2x^3 - 4x^2 + 3x + C$ **3.** $x - \frac{1}{4}x^4 + \frac{5}{6}x^6 - \frac{3}{8}x^8 + C$

5. $4x^{5/4} - 4x^{7/4} + C$ **7.** $(2x^{3/2}/3) + (3x^{4/3}/4) + C$

9. $-5/(4x^8) + C$ **11.** $(2t^{7/2}/7) + (4t^{5/2}/5) + C$

13. $3 \sin t + 4 \cos t + C$ **15.** $x^2 + 5 \sin^{-1}x + C$

17. $x^5 - (x^6/3) + 4$ **19.** $x^3 + x^4 + Cx + D$

21. $\frac{1}{2}x^2 + \frac{25}{126}x^{14/5} + Cx + D$ **23.** $e^t + \frac{1}{2}Ct^2 + Dt + E$

25. $8 + x - 3x^2$ **27.** $2x^{3/2} - 2\sqrt{x} + 2$

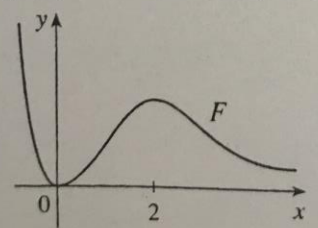
29. $3 \sin x - 5 \cos x + 9$ **31.** $2 \ln(-x) + 7$

33. $(x^3/6) + 2x - 3$ **35.** $(x^4/12) - 3 \cos x + 3x + 5$

37. $x^3 + 3x^2 - 5x + 4$ **39.** $f(x) = 1/(2x) + (x/4) - (3/4)$

41. $f(x) = -\ln x + (\ln 2)x - \ln 2$ **43.** 10 **45.** b

47.



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