

Antiderivatives I

Calculus 11, Veritas Prep.

1.1. $\int 2x \, dx$

1.2. $\int 3x^2 \, dx$

1.3. $\int 4x^3 \, dx$

1.4. $\int 17x^{16} \, dx$

1.5. $\int 0 \, dx$

1.6. $\int 1 \, dx$

1.7. $\int 332 \, dx$

1.8. $\int 5x \, dx$

1.9. $\int 6x^2 \, dx$

1.10. $\int 4x^5 \, dx$

1.11. $\int 22x^{47} \, dx$

1.12. ** $\int ax^n \, dx$

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

1.14. $\int \frac{-1}{x^2} \, dx$

1.15. $\int -2x^{-3} \, dx$

1.16. $\int \frac{-2}{x^3} \, dx$

1.17. $\int -3x^{-4} \, dx$

1.18. $\int \frac{-3}{x^4} \, dx$

1.19. $\int x^{-n} \, dx$

1.20. $\int \frac{1}{x^n} \, dx$

1.21. $\int \frac{5}{x^3} \, dx$

1.22. $\int \frac{7}{3x^4} \, dx$

1.23. $\int \frac{b}{x^n} \, dx$

1.24. $\int \frac{-12}{7x^6} \, dx$

1.25. $\int \frac{9}{x^8} \, dx$

1.26. $\int \frac{5}{67x^{98}} + x^5 \, dx$

$$1.27. \int \frac{1}{2}x^{-1/2} dx$$

$$1.28. \int \frac{1}{2\sqrt{x}} dx$$

$$1.29. \int \frac{3}{\sqrt{x}} dx$$

$$1.30. \int \frac{3}{2}x^{1/2} dx$$

$$1.31. \int \frac{3}{2}\sqrt{x} dx$$

$$1.32. \int \frac{-1}{2}x^{-3/2} dx$$

$$1.33. \int \frac{-3}{2}x^{-5/2} dx$$

$$1.34. \int 5\sqrt{x} dx$$

$$1.35. \int \frac{1}{3}x^{-2/3} dx$$

$$1.36. \int \frac{1}{3\sqrt[3]{x^2}} dx$$

$$1.37. \int \frac{-1}{3}x^{-4/3} dx$$

$$1.38. \int x^{-3} + x^2 dx$$

$$1.39. \int \sqrt{x} + \frac{1}{\sqrt{x}} dx$$

$$1.40. \int x^{-5} dx$$

$$1.41. \int ax^2 + bx + c dx$$

$$1.42. \int ax^3 - \frac{1}{ax} dx$$

$$1.43. \int af'(x) dx$$

$$1.44. \int f'(x) + g'(x) dx$$

$$1.45. \int x^5 + 3x^8 - 12x^7 + 14 dx$$

$$1.46. \int \left[\sum_{k=0}^{k=n} a_k x^k \right] dx \text{ (where all of the } a_k, \text{ i.e., } a_0, a_1, a_2, \text{ etc., are constants)}$$

$$1.47. \int 5\sqrt{x} - 3x^6 + 23x^4 + \pi dx$$

$$1.48. \int x^3 + 3\sqrt[5]{x} + 8x^{2/3} + bx + a dx$$

Antiderivatives II

Calculus 11, Veritas Prep.

2.1. $\int \cos(x) dx$

2.2. $\int \sin(x) dx$

2.3. $\int -\pi \sin(\pi x) dx$

2.4. $\int 3 \sin(x) dx$

2.5. $\int \sin(3x) dx$

2.6. $\int \sin(\pi x) - 3 \sin(3x) dx$

2.7. $\int \frac{\pi}{2} \cos\left(\frac{\pi}{2}x\right) dx$

2.8. $\int \frac{1}{\cos^2 x} dx$

2.9. $\int \sin(x + 3\pi) dx$

2.10. $\int \cos\left(x - \frac{2}{3}\pi\right) dx$

2.11. $\int 2x \cos(x^2) dx$

2.12. $\int 2x \cos(x) dx$

2.13. $\int \frac{\sin(x)}{x} dx$

Antiderivatives III

Calculus 11, Veritas Prep.

3.1. $\int 2x \cos(x^2) dx$

3.2. $\int 3x^2 \cos(x^3) dx$

3.3. $\int -5x^4 \sin(x^5) dx$

3.4. $\int 323(4x^3 + 3x^2)(x^4 + x^3)^{322} dx$

3.5. $\int 9(6x^5 + 2x)(x^6 + x^2)^8 dx$

3.6. $\int 15x^4(x^5 + 12)^2 dx$

3.7. $\int 35x^6(x^7 + 3)^5 dx$

3.8. $\int 4x^3 \cos(x^4 + 2\pi) dx$

3.9. $\int (k + 1) \cdot f'(x) \cdot (f(x))^k dx$

3.10. $\int f'(x) \cdot (f(x))^n dx$

3.11. $\int (4x^3 + 7x^6)f'(x^4 + x^7) dx$

3.12. **** $\int g'(x) \cdot f'(g(x)) dx$

3.13. $\int x \sin(2x^2) dx$

3.14. $\int (1 - \cos(t/2))^2 \sin(t/2) dt$

3.15. $\int 28(7x - 2)^{-5} dx$

3.16. $\int x^3(x^4 - 1)^2 dx$

3.17. $\int \frac{9r}{\sqrt{1 - r^2}} dr$

3.18. $\int 12(y^4 + 4y^2 + 1)^2(y^3 + 2y) dy$

3.19. $\int \frac{1}{\sqrt{5x + 8}} dx$

3.20. $\int \sqrt{3 - 2s} ds$

3.21. $\int (2x + 1)^3 dx$

3.22. $\int \frac{3}{(2 - x)^2} dx$

3.23. $\int \theta^4 \sqrt{1 - \theta^2} d\theta$

3.24. $\int g(x)g'(x) dx$

3.25. $\int \frac{4y}{\sqrt{2y^2 + 1}} dy$

3.26. $\int x^{1/2} \sin(x^{3/2} + 1) dx$

$$3.27. \int \sin^5\left(\frac{x}{3}\right) \cos\left(\frac{x}{3}\right) dx$$

$$3.28. \int r^2 \left(\frac{r^3}{18} - 1\right)^5 dr$$

$$3.29. \int r^4 \left(7 - \frac{r^5}{10}\right) dr$$

$$3.30. \int x^{1/3} \sin(x^{4/3} - 8) dx$$

$$3.31. \int \frac{3}{x^2} \left(1 - \frac{1}{x}\right)^3 dx$$

$$3.32. \int \frac{(1 + \sqrt{x})^3}{\sqrt{x}} dx$$

$$3.33. \int \frac{1}{t^2} \cos\left(\frac{1}{t} - 1\right) dt$$

$$3.34. \int x\sqrt{1-x^2} dx$$

$$3.35. \int -5x^4 \sin(x^4) dx$$

$$3.36. \int \frac{10\sqrt{v}}{(1+v^{3/2})^2} dv$$

$$3.37. \int \frac{4x}{\sqrt{x^2+1}} dx$$

$$3.38. \int \frac{x^3}{\sqrt{x^4-9}} dx$$

$$3.39. \int \frac{g(x)}{(g(x))^2} dx$$

$$3.40. \int \frac{\cos(z)}{\sqrt{4+3\sin(z)}} dz$$

$$3.41. \int \cos^{-3}(2\theta) \sin(2\theta) d\theta$$

$$3.42. \int \tan^{-5}\left(\frac{\theta}{6}\right) \frac{1}{\cos^2\left(\frac{\theta}{6}\right)} d\theta$$

$$3.43. \int (4y - y^2 + 4y^3 + 1)^{-2/3} (12y^2 - 2y + 4) dy$$

$$3.44. \int (y^3 + 6y^2 - 12y + 9)^{-1/2} (y^2 + 4y - 4) dy$$

$$3.45. \int \sqrt{x^4+1} dx$$

$$3.46. \int \frac{b^3 x^3}{\sqrt{1-a^4 x^4}} dx$$

$$3.47. \int \frac{x^{n-1}}{\sqrt{a+bx^n}} dx$$

$$3.48. \int y^2 \left(1 - \frac{y^3}{a^2}\right)^{-2} dy$$

$$3.49. \int \sqrt{1+\sin(x)} \cos(x) dx$$

$$3.50. \int x \sin^3(x^2) \cos(x^2) dx$$

$$3.51. \int k'(x) \cdot g'(k(x)) \cdot f'(g(k(x))) dx$$

Antiderivatives IV

Calculus 11, Veritas Prep.

$$4.1. \int e^x dx$$

$$4.2. \int 2e^{2x} dx$$

$$4.3. \int 276e^{276x} dx$$

$$4.4. \int \cos(x)e^{\sin(x)} dx$$

$$4.5. \int 2xe^{x^2} dx$$

$$4.6. \int (5x^4 + 3x^2)e^{x^5+x^3} dx$$

$$4.7. ** \int g'(x)e^{g(x)} dx$$

$$4.8. \int 8e^{x+1} dx$$

$$4.9. \int e^{3x} + 5e^{-x} dx$$

$$4.10. \int 2e^x - 3e^{-2x} dx$$

$$4.11. \int 2te^{-t^2} dt$$

$$4.12. \int t^3 e^{t^4} dt$$

$$4.13. \int \frac{e^{\tan(\theta)}}{\cos^2(\theta)} d\theta$$

$$4.14. \int 5^x dx$$

$$4.15. \int 2^x \cos(x^3) dx$$

$$4.16. \int \frac{1}{\ln(k)} k^x dx$$

$$4.17. ** \int a^x dx$$

$$4.18. \int 1.3^x dx$$

$$4.19. \int x2^{x^2} dx$$

$$4.20. \int 7^{\cos(t)} \sin(t) dt$$

$$4.21. \int \frac{(\frac{1}{3})^{\tan(t)}}{\cos^2(t)} dt$$

$$4.22. ** \int \frac{1}{x} dx$$

$$4.23. \int \frac{1}{2x} dx$$

$$4.24. \int \frac{1}{x+4} dx$$

$$4.25. \int \frac{1}{x-2} dx$$

$$4.26. \int \frac{1}{3x+8} dx$$

$$4.27. \int \frac{1}{3x-2} dx$$

$$4.28. \int \frac{2x}{x^2-25} dx$$

$$4.29. \int \frac{8x}{4x^2-5} dx$$

$$4.30. \int \frac{4 \sin(\theta)}{1-4 \cos(\theta)} d\theta$$

$$4.31. ** \int \frac{f'(x)}{f(x)} dx$$

$$4.32. \int \frac{-\sin(\theta)}{\cos(\theta)-2} d\theta$$

$$4.33. \int \frac{\sin(\theta)}{\cos(\theta)} d\theta$$

$$4.34. ** \int \tan(\theta) d\theta$$

$$4.35. \int \tan\left(\frac{\pi t}{2}\right) dt$$

$$4.36. \int \frac{5}{x} (8 + \ln(x))^4 dx$$

$$4.37. \int 19 \frac{3x^2+2}{x} (x^3+2x+\ln(x))^{18} dx$$

$$4.38. \int \frac{1}{x} f'(\ln(x)) dx$$

$$4.39. \int f'(\ln(g(x))) \frac{g'(x)}{g(x)} dx$$

$$4.40. \int \frac{1}{x} \cdot 2 \cdot (\ln(x))^1 dx$$

$$4.41. \int \frac{\ln(x)}{x} dx$$

$$4.42. \int \frac{\ln(x)}{3x} dx$$

$$4.43. \int \frac{4}{x(\ln(x))^2} dx$$

$$4.44. \int \frac{(\ln(x))^2}{7x} dx$$

$$4.45. \int \frac{(\ln(x))^{2/3}}{x} dx$$

$$4.46. \int \frac{\log_7(x)}{\ln(7)} dx$$

$$4.47. \int \frac{\log_k(x)}{\ln(k)} dx$$

$$4.48. ** \int \log_k(x) dx$$

$$4.49. \int \frac{e^r}{1+e^r} dr$$

$$4.50. \int \frac{\log_7(x)}{x} dx$$

$$4.51. \int \frac{\log_k(x)}{x} dx$$

$$4.52. \int x e^x dx$$

$$4.53. \int \ln(x) dx$$

Antiderivatives V

Calculus 11, Veritas Prep.

5.1. $\int 1 + 2x + 3x^2 + 4x^3 dx$

5.2. $\int x^3 + 4x^7 - 2x^4 + 6 dx$

5.3. $\int ax^n + x^n + 3x^b - g dx$

5.4. $\int 1/2 \cdot x^{-1/2} + 1/3 \cdot x^{-2/3} + 1/12 \cdot x^{-11/12} dx$

5.5. $\int x^{4/5} - x^{3/4} + x^{-1/3} + 5x^{2/7} dx$

5.6. $\int \sqrt[5]{x^4} - \sqrt[4]{3} + \frac{1}{\sqrt[3]{x}} + 5\sqrt[7]{x^2} dx$

5.7. $\int g'(x) \cdot f'(g(x)) dx$

5.8. $\int 3x^2 \cdot 8(x^3 + 5)^7 dx$

5.9. $\int \cos(x) \cdot 4(\sin(x) + 3)^3 dx$

5.10. $\int (3x^2 + 8x^7 - 1) \cdot 26(x^3 + x^8 - x)^{25} dx$

5.11. $\int (5x^4 - 9x^2 - 720x^{79})(x^5 - 3x^3 - 9x^{80})^{11} dx$

5.12. $\int 3(\cos(x) + 10x^9)(\sin(x) + x^{10})^4 dx$

5.13. $\int (2x + 5)(x^2 + 5x)^7 dx$

5.14. $\int (3 - x)^{10} dx$

5.15. $\int -2x\sqrt{4 - x^2} dx$

5.16. $\int \sqrt{7x + 9} dx$

5.17. $\int \frac{x^3}{(1 + x^4)^{1/3}} dx$

5.18. $\int e^{5x+2} dx$

5.19. $\int 4 \cos(3x) dx$

5.20. $\int \frac{\sin(\ln(x))}{x} dx$

5.21. $\int \frac{3x + 6}{x^2 + 4x - 3} dx$

5.22. $\int x3^{x^2+1} dx$

5.23. $\int x^2 e^{-4x^3} dx$

5.24. $\int (\cos(x))^3 \sin(x) dx$

5.25. $\int x^3 \cos(5x^4) dx$

5.26. $\int (3x + 4)^{100} dx$

$$5.27. \int \frac{\cos(x)}{1 + \sin^2(x)} dx$$

$$5.28. \int \frac{(2 - \sqrt{x})^5}{\sqrt{x}} dx$$

$$5.29. \int \frac{1}{\cos^2(2x - 3)} dx$$

$$5.30. \int \frac{x^{n-1}}{\sqrt{a + bx^n}} dx$$

$$5.31. \int x^3(x^2 + 1)^{1/8} dx$$

$$5.32. \int e^x e^x dx$$

$$5.33. \int \frac{\ln(ax)}{x} dx$$

Antiderivatives VI

Calculus 11, Veritas Prep.

$$6.1. \int 325 + 4x^8 + 9x^3 + 7x^6 - \frac{3}{4}x^5 - 3 dx$$

$$6.2. \int \sqrt[3]{x} - \frac{2}{x^2} + 5x^{3/2} - \frac{1}{\sqrt{4x}} + \frac{1}{5} dx$$

$$6.3. \int \frac{1}{x} + \frac{1}{x^2} + \frac{1}{x^3} + \frac{1}{x^4} + \frac{1}{x^n} dx$$

$$6.4. \int g'(x) \cdot f'(g(x)) dx$$

$$6.5. \int (5x^4 + 12x^{11}) \cdot 37(x^5 + x^{12})^{36} dx$$

$$6.6. \int (3x^2 + 16x) \cdot \frac{1}{x^3 + 8x^2 + 56} dx$$

$$6.7. \int \cos(x + 3) \cdot 4(\sin(x + 3))^3 dx$$

$$6.8. \int (2x + 2) \cdot e^{x^2 + 2x + 3} dx$$

$$6.9. \int \frac{3x^2 + 3}{x^3 + 3x} dx$$

$$6.10. \int (3x^2 + 8x^7 - 1) \cdot 26(x^3 + x^8 - x)^{25} dx$$

$$6.11. \int \frac{\sin(\ln(ax))}{x} dx$$

$$6.12. \int (x^4 + 2x^9) \sin(x^5 + x^{10}) \cos(x^5 + x^{10}) dx$$

$$6.13. \int \frac{2 \sin(x) + 4x}{\cos(x) + x^2} dx$$

$$6.14. \int (x + 5)^{22} dx$$

$$6.15. \int (7x^6 + 20x^3)(x^7 + 5x^4)^{3/4} dx$$

$$6.16. \int e^{-x^2} dx$$

Antiderivatives VII

Calculus 11, Veritas Prep.

7.1. $\int 2x \cos(x) dx$

7.2. $\int xe^x dx$

7.3. $\int 2x \ln(x) dx$

7.4. $\int f'(x)g(x) dx$

7.5. $\int x^2 e^x dx$

7.6. $\int \ln(x) dx$

7.7. $\int 1 \cdot \ln(x) dx$

7.8. $\int x^5 \sin(x) dx$

7.9. $\int e^x \cos(x) dx$