CHAPTER 4, FORM A

1. 34

2. $\dfrac{2\sqrt{6}}{3}x^{3/2}+c$

3. $100x^5+c$

4. $3e^x+\ln x+\dfrac{2}{5}x^{5/2}+c$

5. $\dfrac{4}{3}$

6. $6\ln 5$

7. Total revenue, in cents, for the production of x units

8. -675

9. $\dfrac{1-e^{-21}}{7}$

10. $\dfrac{2a\sqrt{a}}{3}$

11. $\dfrac{101}{6}$

12. Zero

13. $\ln(x-4)+c$

14. $\dfrac{-10}{9}e^{-0.9x}+c$

15. $\dfrac{1}{16}(t^2-5)^8+c$

16. $\dfrac{x}{4}e^{4x}-\dfrac{e^{4x}}{16}+c$

17. $x^7\ln x-\dfrac{x^7}{7}+c$

18. $\dfrac{4^x}{\ln 4}+c$

19. $\dfrac{1}{5}\ln\left|\dfrac{x}{5-x}\right|+c$

20. 67.5

21. $\dfrac{1}{4}$

22. $9,940

23. 66 words

24. 6.4 km

25. $2\ln(2+5x)+c$

26. $x^4e^x-4x^3e^x+12x^2e^x-24xe^x+24e^x+c$

27. $\dfrac{1}{9}e^{x^9}+c$

28. $2x^{1/2}\ln x-4x^{1/2}+c$

29. $\dfrac{1}{14}\ln\left(\dfrac{7+x}{7-x}\right)+c$

30. $-\dfrac{5}{2}x^3e^{-0.4x}-\dfrac{75}{4}x^2e^{-0.4x}-\dfrac{375}{4}xe^{-0.4x}$
$\qquad\qquad -\dfrac{1875}{8}e^{-0.4x}+c$

31. $\dfrac{x^2}{2}\ln(3x)-\dfrac{x^2}{4}+c$

32. $\dfrac{1}{15}(3x^2+10)(x^2-5)^{3/2}+c$

33. $3\ln x-\dfrac{2}{3}(\ln x)^3+(\ln x)^4+c$

34. $(x+9)\ln(x+9)-(x+2)\ln(x+2)+c$

35. $\dfrac{1}{\ln 3}e^{(\ln 3)x}+c$, or $\dfrac{3^x}{\ln 3}+c$

36. 17.01

CHAPTER 4, FORM B

1. 50

2. $\dfrac{2\sqrt{11}}{3}x^{3/2}+c$

3. $37x^4+c$

4. $e^x+3\ln x+\dfrac{4}{7}x^{7/4}+c$

5. $\dfrac{9}{2}$

6. $2\ln 10$

7. Total number of hundreds of gallons of water used in t hours

8. 22.5

9. $\dfrac{1-e^{-15}}{3}$

10. $1-\dfrac{1}{a^2}$

11. $\dfrac{251}{2}$

12. negative

13. $\ln(x+3)+c$

14. $-8e^{-0.125x}+c$

15. $\dfrac{1}{6}(t^4+3)\sqrt{t^4+3}+c$

16. $\dfrac{x}{7}e^{7x}-\dfrac{e^{7x}}{49}+c$

17. $x^5\ln x-\dfrac{x^5}{5}+c$

18. $\dfrac{6^x}{\ln 6}+c$

19. $\dfrac{1}{3}\ln\left|\dfrac{x}{x+3}\right|+c$

20. 43

21. $\dfrac{3}{10}$

22. \$2050

23. 71 words

24. 126 m

25. $2\ln(2+3x)+c$

26. $5x^4e^x-20x^3e^x+60x^2e^x-120xe^x+120e^x+c$

27. $\dfrac{1}{7}e^{x^7}+c$

28. $\dfrac{3}{4}x^{4/3}\ln x-\dfrac{9}{16}x^{4/3}+c$

29. $\dfrac{1}{18}\ln\left(\dfrac{9+x}{9-x}\right)+c$

30. $\dfrac{-10}{3}x^3e^{-0.3x}-\dfrac{100}{3}x^2e^{-0.3x}-\dfrac{2000}{9}xe^{-0.3x}$
                                       $-\dfrac{20000}{27}e^{-0.3x}+c$

31. $\dfrac{x^2}{2}\ln(5x)-\dfrac{x^2}{4}+c$

32. $\dfrac{1}{15}(3x^2-14)(x^2+7)^{3/2}+c$

33. $2(\ln x)^4-\dfrac{2}{3}(\ln x)^3-6\ln x+c$

34. $(x+4)\ln(x+4)-(x-3)\ln(x-3)+c$

35. $\dfrac{1}{\ln 7}e^{(\ln 7)x}+c,\text{ or }\dfrac{7^x}{\ln 7}+c$

36. 2.9583

CHAPTER 4, FORM C

1. 22

2. $\dfrac{2\sqrt{10}}{3}x^{3/2}+c$

3. $125x^6+c$

4. $e^x+3\ln x+\dfrac{5}{8}x^{8/5}+c$

5. $\dfrac{9}{2}$

6. $5\ln 7$

7. Total numbers of items returned in t days

8. 90

9. $\dfrac{1-e^{-36}}{4}$

10. $\dfrac{-3a\sqrt[3]{a}}{4}$

11. 108

12. negative

13. $\ln(x+8)+c$

14. $-\dfrac{5}{3}e^{-0.6x}+c$

15. $\dfrac{1}{20}(t^5+6)^4+c$

16. $\dfrac{x}{6}e^{6x}-\dfrac{e^{6x}}{36}+c$

17. $x^3\ln x-\dfrac{x^3}{3}+c$

18. $\dfrac{8^x}{\ln 8}+c$

19. $\dfrac{1}{2}\ln\left|\dfrac{x}{2-x}\right|+c$

20. $\dfrac{-43}{6}$

21. 4

22. \$72,500

23. 33 words

24. 37.5 km

25. $\dfrac{5}{2}\ln(3+2x)+c$

26. $x^3e^x-3x^2e^x+6xe^x-6e^x+c$

27. $\dfrac{1}{5}e^{x^5}+c$

28. $\dfrac{1}{2}(\ln x)^2+c$

29. $\dfrac{1}{10}\ln\left(\dfrac{5+x}{5-x}\right)+c$

30. $-5x^5e^{-0.2x}-125x^4e^{-0.2x}-2500x^3e^{-0.2x}$
$-37{,}500x^2e^{-0.2x}-375{,}000xe^{-0.2x}$
$-1{,}875{,}000e^{-0.2x}+c$

31. $\dfrac{x^2}{2}\ln(25x)-\dfrac{x^2}{4}+c$

32. $\dfrac{1}{5}(x^2+2)(x^2-3)^{3/2}+c$

33. $(\ln x)^3+\dfrac{5(\ln x)^2}{2}-2\ln x+c$

34. $(x+8)\ln(x+8)-(x-2)\ln(x-2)+c$

35. $\dfrac{1}{\ln 6}e^{(\ln 6)x}+c$, or $\dfrac{6^x}{\ln 6}+c$

36. $\dfrac{81}{2}$, or 40.5

CHAPTER 4, FORM D

1. 26

2. $\dfrac{2\sqrt{2}}{3}x^{3/2}+c$

3. $\dfrac{100}{3}x^9+c$

4. $2e^x+\ln x+\dfrac{2}{3}x^{3/2}+c$

5. $\dfrac{1}{6}$

6. $3\ln 2$

7. Total distance traveled in time t

8. -70

9. $\dfrac{1-e^{-48}}{8}$

10. $\ln 2$

11. $\dfrac{41}{6}$

12. negative

13. $\ln(x+7)+c$

14. $-20e^{-0.05x}+c$

15. $-\dfrac{1}{18}(4-t^6)^3+c$

16. $\dfrac{x}{3}e^{3x}-\dfrac{e^{3x}}{9}+c$

17. $x^6\ln x-\dfrac{x^6}{6}+c$

18. $\dfrac{3^x}{\ln 3}+c$

19. $\dfrac{1}{6}\ln\left|\dfrac{x}{6+x}\right|+c$

20. 182

21. $\dfrac{4}{3}$

22. $5400

23. 8 words

24. 49.5 m

25. $\dfrac{3}{4}\ln(5+4x)+c$

26. $3x^5e^x-15x^4e^x+60x^3e^x$
    $-180x^2e^x+360xe^x-360e^x+c$

27. $\dfrac{1}{10}e^{x^{10}}+c$

28. $-\dfrac{1}{x}\ln x-\dfrac{1}{x}+c$

29. $\dfrac{1}{12}\ln\left(\dfrac{6+x}{6-x}\right)+c$

30. $-4x^5e^{-0.25x}-80x^4e^{-0.25x}-1280x^3e^{-0.25x}$
    $-15{,}360x^2e^{-0.25x}-122{,}880xe^{-0.25x}$
    $-491{,}520e^{-0.25x}+c$

31. $\dfrac{x^2}{2}\ln 6x-\dfrac{x^2}{4}+c$

32. $\dfrac{1}{15}(3x^2-4)(x^2+2)^{3/2}+c$

33. $3\ln x+\dfrac{2}{3}(\ln x)^3+\dfrac{(\ln x)^6}{6}+c$

34. $(x-5)\ln(x-5)+(x+3)\ln(x+3)-2x+c$

35. $\dfrac{1}{\ln 2}e^{(\ln 2)x}+c$, or $\dfrac{2^x}{\ln 2}+c$

36. 2

CHAPTER 4, FORM E

1. 22

2. $\dfrac{2\sqrt{7}}{3}x^{3/2}+c$

3. $30x^7+c$

4. $e^x+4\ln x+\dfrac{2}{5}x^{5/2}+c$

5. $\dfrac{9}{2}$

6. $7\ln 9$

7. Total sales in t days

8. 75

9. $\dfrac{1-e^{-20}}{10}$

10. $\dfrac{2a\sqrt{a}}{3}$

11. 25

12. positive

13. $\ln(x-10)+c$

14. $-\dfrac{10}{7}e^{-0.7x}+c$

15. $\dfrac{1}{15}(t^5-2)^3+c$

16. $\dfrac{x}{2}e^{2x}-\dfrac{e^{2x}}{4}+c$

17. $x^{11}\ln x-\dfrac{x^{11}}{11}+c$

18. $\dfrac{7^x}{\ln 7}+c$

19. $\dfrac{1}{4}\ln\left|\dfrac{x}{4+x}\right|+c$

20. -14

21. $\dfrac{9}{2}$

22. $5700

23. 27 words

24. 9.9 km

25. $\dfrac{5}{4}\ln(1+4x)+c$

26. $3x^3e^x-9x^2e^x+18xe^x-18e^x+c$

27. $\dfrac{1}{3}e^{x^3}+c$

28. $2x^{1/2}\ln x-4x^{1/2}+c$

29. $\dfrac{1}{24}\ln\left(\dfrac{12+x}{12-x}\right)+c$

30. $-5x^4e^{-0.2x}-100x^3e^{-0.2x}$
    $-1500x^2e^{-0.2x}-15{,}000xe^{-0.2x}$
    $-75{,}000e^{-0.2x}+c$

31. $\dfrac{x^2}{2}\ln(12x)-\dfrac{x^2}{4}+c$

32. $\dfrac{1}{5}(x^2+4)(x^2-6)^{3/2}+c$

33. $10\ln x+\dfrac{5}{6}(\ln x)^6-\dfrac{2}{11}(\ln x)^{11}+c$

34. $(x-5)\ln(x-5)-(x+2)\ln(x+2)+c$

35. $\dfrac{1}{\ln 8}e^{(\ln 8)x}+c;\ \text{or}\ \dfrac{8^x}{\ln 8}+c$

36. 24

CHAPTER 4, FORM F

1. 95

2. $\dfrac{2\sqrt{13}}{3}x^{3/2}+c$

3. $90x^5$

4. $3e^x+5\ln x+\dfrac{6}{11}x^{11/6}+c$

5. $\dfrac{125}{6}$

6. $8\ln 6$

7. Total cost of n dozen units produced

8. 129

9. $\dfrac{1-e^{-108}}{9}$

10. $3\ln 3$

11. $\dfrac{63}{2}$

12. Zero

13. $\ln(x+13)+c$

14. $-\dfrac{10}{3}e^{-0.3x}+c$

15. $\dfrac{2}{15}(t^5+5)\sqrt{t^5+5}+c$

16. $\dfrac{x}{8}e^{8x}-\dfrac{e^{8x}}{64}+c$

17. $x^{10}\ln x-\dfrac{x^{10}}{10}+c$

18. $\dfrac{9^x}{\ln 9}+c$

19. $\dfrac{1}{8}\ln\left|\dfrac{x}{8-x}\right|+c$

20. $\dfrac{-11}{2}$

21. $\dfrac{32}{3}$

22. \$29,750

23. 56 words

24. 66.7 m

25. $2\ln(3+4x)+c$

26. $10x^4e^x-40x^3e^x+120x^2e^x$
$-240xe^x+240e^x+c$

27. $\dfrac{1}{4}e^{x^4}+c$

28. $\dfrac{4}{5}x^{5/4}\ln x-\dfrac{16}{25}x^{5/4}+6$

29. $\dfrac{1}{6}\ln\left(\dfrac{3+x}{3-x}\right)+c$

30. $-2x^4e^{-0.5x}-16x^3e^{-0.5x}-96x^2e^{-0.5x}$
$-384xe^{-0.5x}-768e^{-0.5x}+c$

31. $\dfrac{x^2}{2}\ln(10x)-\dfrac{x^2}{4}+c$

32. $\dfrac{1}{15}(3x^2-16)(x^2+8)^{3/2}+c$

33. $\dfrac{(\ln x)^5}{5}-(\ln x)^3+4\ln x+c$

34. $(x-1)\ln(x-1)+(x+6)\ln(x+6)-2x-c$

35. $\dfrac{1}{\ln 4}e^{(\ln 4)x}+c,\text{ or }\dfrac{4^x}{\ln 4}+c$

36. 16