

# Spring Final Review Solutions

17.  $x^2 - x^3 + C$

29.  $x^3 + \frac{1}{2}x^2 - 2x + C$

30.  $\frac{4}{5}t^5 - \frac{4}{3}t^3 + t + C$

34.  $-\frac{1}{5} \frac{1}{x^5} + C$

36.  $\frac{1}{3}t^3 + \cos t + C$

57.  $h(t) = 2t^4 + 5t - 11$

58.  $f(x) = 3x^2 + 10$

4.3

1.  $\frac{7}{24}$

2. 4

3.  $39/4$

4.4

4.  $\frac{18}{9} (3^{2/3})$  or  $\frac{18}{5} \sqrt[3]{9}$

14.  $15/2$

15. 2

28.  $\pi/6$

23.  $9/2$

41.  $8/3$

69.  $35/4$

76. a)  $\frac{x^4}{4} + \frac{x^2}{2}$

b)  $x^3 + x$

77 a)  $\frac{3}{4}x^{4/3} - 12$

b)  $x^{1/3}$

84.  $\sqrt[4]{x}$

85.  $x \cos x$

9.  $\frac{2}{3} (9 - x^2)^{3/2} + C$

15.  $\frac{1}{3} (t^2 + 2)^{3/2} + C$

24.  $\frac{1}{2} (1 + x^4)^{1/2} + C$

27.  $(2x)^{1/2} + C$

45.  $-\frac{1}{2} \cos 2x + C$

48.  $-\frac{1}{2} \cos x^2 + C$

54.  $\frac{1}{2 \cos^2 x} + C$

1.  $\frac{x-1}{x(x-2)}$

2.  $19x - 14$

3.  $\frac{2(x^2 + x - 1)}{(x-1)^{1/2}(x+1)^{3/2}}$

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

5.  $\frac{2}{15} x^5 + \frac{1}{9} x^3 + 2 \ln |x| + C$

6.  $-\frac{2}{3} \sqrt{3 - x^3} + C$

7.  $\ln |x+1| - \ln |x+4| + C$

8.  $\ln |x+2| + \ln |x-1| + C$

9.  $\frac{15}{2} \frac{e^{5\sqrt{x}}}{\sqrt{x}}$

10.  $\frac{8e^{8x}}{3 + e^{8x}}$

11.  $x - 7e^{-x} + C$

12.  $\frac{-2}{x^3 + 3x} + C$

21. 1.965

25, 12.253

29.  $\sqrt[3]{3^{45}} \approx 11.845$

22.  $g' = 2^{6t} (6) \ln 2$

41.  $2^{-\alpha} (-\ln 2 \cos \pi \alpha - \pi \sin \pi \alpha)$

44.  $\frac{1}{\ln 3} \left( \frac{3x-2}{2x(x-1)} \right)$

65.  $\frac{1}{2 \ln 3} \ln |1 + 3^{2x}| + C$

67.  $\frac{7}{2 \ln 2}$

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

29. 6

5.  $1/2$

9.  $2\sqrt{2}$

6.  $2\pi/35$

14. (a)  $243\pi/5$

(b)  $108\pi/5$

21. (a)  $64\pi/3$  (b)  $160\pi/3$

32.  $2\pi/3$

62. (a)  $16807/30$

(b)  $243/4$