Math2414 TestReview 2 Fall 2019

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. Find the indefinite integral.

$$\int \left[r + \frac{5}{(r-2)^4} \right] dr$$

a. $\frac{r^2}{2} + \frac{5}{4(r-2)^4} + C$
b. $\frac{r^2}{2} - \frac{5}{3(r-2)^4} + C$
c. $\frac{r^2}{2} + \frac{1}{(r-2)^5} + C$
d. $\frac{r^2}{2} - \frac{5}{3(r-2)^3} + C$
e. $\frac{r^2}{2} - \frac{5}{3(r-2)^5} + C$

____ 2. Find the indefinite integral.

$$\int \frac{q^2}{q+9} dq$$

a. $81 \ln|q+9| + \frac{q^2}{2} - 9q + C$
b. $\ln|q+9| + \frac{q^2}{2} - 9q + C$
c. $\ln|q+9| + \frac{q^2}{2} - 10q + C$
d. $81 \ln|q+9| + \frac{q^2}{2} - 10q + C$
e. $81 \ln|q+9| - 10q + C$

____ 3. Find the indefinite integral $\int 3x^4 \cos 8\pi x^5 dx$.

a. $\frac{3}{40\pi} \sec 40x^4 + C$

b. $\frac{3}{40\pi} \sin 40\pi x^4 + C$

c. $\frac{3}{40\pi} \sec 120\pi x^5 + C$

d. $\frac{3}{40\pi} \tan 8\pi x^4 + C$

e. $\frac{3}{40\pi} \sin 8\pi x^5 + C$

____ 4. Find the indefinite integral.

$$\int \frac{\cot\left(13/z^2\right)}{z^3} dz$$

a. $\frac{1}{13} \ln\left|\sin\left(13/z^2\right)\right| + C$

b. $-\frac{1}{26} \ln\left|\sin\left(13/z\right)\right| + C$

c. $-\frac{1}{13} \ln\left|\sin\left(13/z^2\right)\right| + C$

d. $-\frac{1}{26} \ln\left|\sin\left(13/z^2\right)\right| + C$

e. $\frac{1}{26} \ln\left|\sin\left(13/z^2\right)\right| + C$

____ 5. Find the indefinite integral $\int \frac{1}{\sqrt{32 - 2x - x^2}} dx$.

a. $\arcsin\left(\frac{x+1}{\sqrt{32}}\right) + C$

b. $\arcsin\left(\frac{x+2}{\sqrt{33}}\right) + C$

c. $\arcsin\left(\frac{x-1}{\sqrt{32}}\right) + C$

d. $\arcsin\left(\frac{x-2}{\sqrt{34}}\right) + C$

e. $\arcsin\left(\frac{x+1}{\sqrt{33}}\right) + C$

____ 6. Find the definite integral.

$$\int_0^{12} \frac{8x}{\sqrt{x^2+25}}\,dx$$

a. 64
b. 56
c. 8
d. 104
e. 7

____ 7. Find the definite integral.

$$\int_0^3 x^2 e^{-x^3}\,dx$$

a. $\frac{1}{3}\left[1-e^{-27}\right]$
b. $-\frac{1}{3}\left[1+e^{-27}\right]$
c. $-3\left[1-e^{-27}\right]$
d. $3\left[1-e^{-27}\right]$
e. $\left[1-e^{-27}\right]$

____ 8. Find the indefinite integral.

$$\int \frac{4x^2}{e^x}\,dx$$

a. $-4\left(x^2+2x+2\right)e^{-x}+C$
b. $4\left(x^2-2x+2\right)e^{-x}+C$
c. $-4x\left(x^2+2x+2\right)e^{-x}+C$
d. $\left(x^2+2x+2\right)e^{-x}+C$
e. $-\left(x^2+2x+2\right)e^{-x}+C$

____ 9. Find the indefinite integral.

$$\int x \ln(x-8)\,dx$$

a. $\left(\frac{x^2-64}{2}\right)\ln(x-8) - \frac{x^2+16x}{4} + C$

b. $\left(\frac{x^2-64}{2}\right)\ln(x-8) + \frac{x^2+8x}{4} + C$

c. $\left(\frac{x^2-64}{2}\right)\ln(x-8) + \frac{x^2+16x}{4} + C$

d. $\left(\frac{x^2-64}{2}\right)\ln(x-8) - \frac{x^2+16x}{2} + C$

e. $\left(\frac{x^2+64}{2}\right)\ln(x-8) - \frac{x^2-8x}{4} + C$

____ 10. Find the indefinite integral.

$$\int e^t \sin 6t\,dt$$

a. $\left(\frac{\sin 6t + 6\cos 6t}{37}\right)e^t + C$

b. $\left(\frac{-6\sin 6t + \cos 6t}{37}\right)e^t + C$

c. $\left(\frac{6\sin 6t + \cos 6t}{37}\right)e^t + C$

d. $\left(\frac{-\sin 6t + 6\cos 6t}{37}\right)e^t + C$

e. $\left(\frac{\sin 6t - 6\cos 6t}{37}\right)e^t + C$

____ 11. Find the indefinite integral.

$$\int \sin x \cos^3 x dx$$

a. $-\frac{\cos^4 x}{3} + C$

b. $-\frac{\cos^4 x}{4} + C$

c. $\frac{\cos^4 x}{4} + C$

d. $\frac{\sin^4 x}{4} + C$

e. $-\frac{\sin^4 x}{4} + C$

____ 12. Find the indefinite integral.

$$\int \sin^2 3x dx$$

a. $\frac{3x - \sin 3x \cos 3x}{3} + C$

b. $\frac{3x + \sin 3x \cos 3x}{6} + C$

c. $\frac{3x - \sin 3x \cos 3x}{6} + C$

d. $\frac{3x - \sin^2 3x \cos 3x}{6} + C$

e. $\frac{3x + \sin 3x \cos 3x}{3} + C$

____ 13. Find the indefinite integral.

$$\int \sec^4 9x dx$$

a. $\frac{1}{27}\tan(9x)\left(3 + \tan(9x)\right) + C$

b. $\frac{1}{27}\tan(9x)\left(3 + \tan^2(9x)\right) + C$

c. $-\frac{1}{27}\tan(9x)\left(3 + \tan^2(9x)\right) + C$

d. $\frac{1}{27}\tan(9x)\left(3 - \tan^2(9x)\right) + C$

e. $\frac{1}{27}\tan(9x)\left(3 - \tan(9x)\right) + C$

____ 14. Find the indefinite integral by making the substitution $x = 7\sin\theta$.

$$\int \frac{x}{\left(49 - x^2\right)^{3/2}}\,dx$$

a. $\dfrac{1}{\sqrt{49 - x^2}} + C$

b. $\dfrac{3}{2\sqrt{49 - x^2}} + C$

c. $-\dfrac{3}{2\sqrt{49 - x^2}} + C$

d. $\dfrac{4}{\sqrt{49 - x^2}} + C$

e. $\dfrac{2}{\sqrt{49 - x^2}} + C$

____ 15. Find the indefinite integral by making the substitution $x = 9\sin\theta$.

$$\int \frac{\sqrt{81 - x^2}}{x}\,dx$$

a. $\sqrt{81 - x^2} - 9\ln\left|\dfrac{9 - \sqrt{81 - x^2}}{x}\right| + C$

b. $\left(81 - x^2\right)^{3/2} + 9\ln\left|\dfrac{9 - \sqrt{81 - x^2}}{x}\right| + C$

c. $\sqrt{81 - x^2} + 9\ln\left|\dfrac{9 - \sqrt{81 - x^2}}{x}\right| + C$

d. $\sqrt{81 - x^2} + 9\ln\left|\dfrac{9 + \sqrt{81 - x^2}}{x}\right| + C$

e. $\left(81 - x^2\right)^{3/2} - 9\ln\left|\dfrac{9 + \sqrt{81 - x^2}}{x}\right| + C$

____ 16. Find the indefinite integral by making the substitution $x = 6\sec\theta$.

$$\int \frac{\sqrt{x^2 - 36}}{x}\,dx$$

a. $\sqrt{x^2 - 36} - 6\sec^{-1}\left(\frac{x}{6}\right) + C$

b. $\sqrt{x^2 - 36} + 6\sec^{-1}\left(\frac{x}{6}\right) + C$

c. $\sqrt{x^2 - 36} + 6\sec^{-1}\left(\frac{6}{x}\right) + C$

d. $\sqrt{x^2 - 36} - 36\sec^{-1}\left(\frac{x}{6}\right) + C$

e. $\sqrt{x^2 - 36} - 6\sec^{-1}\left(\frac{6}{x}\right) + C$

____ 17. Find the indefinite integral by making the substitution $x = 7\tan\theta$.

$$\int \frac{x^3}{\sqrt{49 + x^2}}\,dx$$

a. $\frac{\sqrt{49 + x^2}\left(x^2 - 49\right)}{3} + C$

b. $\frac{\sqrt{49 + x^2}\left(98 - x^2\right)}{3} + C$

c. $\frac{2\sqrt{49 + x^2}\left(x^2 - 49\right)}{3} + C$

d. $\frac{\sqrt{49 + x^2}\left(x^2 - 98\right)}{3} + C$

e. $\frac{2\sqrt{49 + x^2}\left(x^2 - 98\right)}{3} + C$

____ 18. Find the indefinite integral.

$$\int \frac{1}{\left(x^2+8\right)^{3/2}}\,dx$$

a. $-\dfrac{x^2}{8\sqrt{x^2+8}}+C$

b. $\dfrac{x}{8\sqrt{x^2+8}}+C$

c. $-\dfrac{x}{8\sqrt{x^2+8}}+C$

d. $\dfrac{x^2}{8\sqrt{x^2+8}}+C$

e. $8x\sqrt{x^2+8}+C$

____ 19. Evaluate the integral $\displaystyle\int_0^3 \frac{x^3}{\sqrt{x^2+9}}\,dx$ using the integration limits. Round your answer to three decimal places.

a. $\displaystyle\int_0^3 \frac{x^3}{\sqrt{x^2+9}}\,dx \approx 10.728$

b. $\displaystyle\int_0^3 \frac{x^3}{\sqrt{x^2+9}}\,dx \approx 5.272$

c. $\displaystyle\int_0^3 \frac{x^3}{\sqrt{x^2+9}}\,dx \approx 9$

d. $\displaystyle\int_0^3 \frac{x^3}{\sqrt{x^2+9}}\,dx \approx 9.392$

e. $\displaystyle\int_0^3 \frac{x^3}{\sqrt{x^2+9}}\,dx \approx 7.608$

____ 20. Write the form of the partial fraction decomposition for the following rational expression.

$$\frac{7x-6}{x\left(x^2+10\right)^2}$$

a. $\dfrac{A}{x}+\dfrac{Bx+C}{\left(x^2+10\right)^2}$

b. $\dfrac{A}{x}+\dfrac{B}{x^2+10}+\dfrac{C}{\left(x^2+10\right)^2}$

c. $\dfrac{A}{x}+\dfrac{B}{x+10}+\dfrac{C}{x-10}$

d. $\dfrac{A}{x}+\dfrac{B}{x+10}+\dfrac{C}{(x+10)^2}+\dfrac{D}{x-10}+\dfrac{E}{(x-10)^2}$

e. $\dfrac{A}{x}+\dfrac{Bx+C}{x^2+10}+\dfrac{Dx+E}{\left(x^2+10\right)^2}$

____ 21. Use partial fractions to find $\int \dfrac{1}{x^2-9}\,dx$.

a. $\int \dfrac{1}{x^2-9}\,dx=\dfrac{1}{6}\ln\left|\dfrac{x-3}{x+3}\right|+C$

b. $\int \dfrac{1}{x^2-9}\,dx=\dfrac{1}{6(x-3)}-\dfrac{1}{6(x+3)}+C$

c. $\int \dfrac{1}{x^2-9}\,dx=\dfrac{1}{6}\ln\left|\dfrac{x-6}{x+6}\right|+C$

d. $\int \dfrac{1}{x^2-9}\,dx=\dfrac{1}{(x-3)}-\dfrac{1}{(x+3)}+C$

e. $\int \dfrac{1}{x^2-9}\,dx=\ln\left|\dfrac{x-3}{x+3}\right|+C$

____ 22. Use partial fractions to find the integral $\int \frac{3x^3 - 28x^2 + 39x + 82}{x^2 - 10x + 21}\,dx$.

a. $\frac{3}{2}x^2 + 2x - 3\ln|x-7| + 7\ln|x-3| + C$

b. $\frac{3}{2}x^2 + 2x + 3\ln|x-7| - 7\ln|x-3| + C$

c. $\frac{3}{2}x^2 + 2x + 3\ln|x-7| + 7\ln|x-3| + C$

d. $3x + 2 + 3\ln|x-7| - 7\ln|x-3| + C$

e. $\frac{3}{2}x^2 + 2x - 3\ln|x-7| - 7\ln|x-3| + C$

____ 23. Use partial fractions to find the integral $\int \frac{12x^2 + 5x + 225}{x^3 + 25x}\,dx$.

a. $9\ln|x| + (3x+5)\ln\left(x^2+25\right) + C$

b. $9\ln|x| + 3\ln|x+5| + 5\ln|x-5| + C$

c. $9\ln|x| + \frac{3}{2}\ln\left(x^2+25\right) + \arctan\left(\frac{x}{5}\right) + C$

d. $9\ln|x| + \frac{3}{2}\ln\left(x^2+25\right) + C$

e. $237\ln|x| - \frac{5}{x} + C$

____ 24. Evaluate the definite integral $\int_0^2 \frac{3}{4x^2+5x+1}\,dx$.

a. $\int_0^2 \frac{3}{4x^2+5x+1}\,dx = 5$

b. $\int_0^2 \frac{3}{4x^2+5x+1}\,dx = \ln(3)$

c. $\int_0^2 \frac{3}{4x^2+5x+1}\,dx = 2$

d. $\int_0^2 \frac{3}{4x^2+5x+1}\,dx = \ln(4)$

e. $\int_0^2 \frac{3}{4x^2+5x+1}\,dx = \ln(1)$

____ 25. Find the integral using integration by parts.
$\int x^4 \ln x\,dx$

a. $\int x^4 \ln x\,dx = \frac{1}{25}(5\ln x - x) + C$

b. $\int x^4 \ln x\,dx = x^5(5\ln x - 1) + C$

c. $\int x^4 \ln x\,dx = \frac{1}{25}x^5(5\ln x - 1) + C$

d. $\int x^4 \ln x\,dx = \frac{1}{25}x^5(5\ln x - x) + C$

e. $\int x^4 \ln x\,dx = \frac{1}{25}(\ln x - 1) + C$

____ 26. Evaluate the limit $\lim_{x \to 10} \frac{-9(x-10)}{x^2-100}$ first by using techniques from Chapter 1 then by using L'Hopital's Rule.

a. $\frac{9}{20}$
b. $-\frac{9}{100}$
c. $-\frac{9}{20}$
d. 0
e. does not exist

____ 27. Evaluate the limit $\lim_{x \to 8} \frac{-2x^2+25-72}{x-8}$ first by using techniques from Chapter 1 then by using L'Hopital's Rule.

a. 8
b. 0
c. -7
d. 7
e. does not exist

____ 28. Evaluate the limit $\lim_{x \to \infty} \frac{56-7x+8x^2}{5x^2-7}$ first by using techniques from Chapter 3 then by using L'Hopital's Rule.

a. $\frac{56}{5}$
b. $\frac{8}{5}$
c. $-\frac{7}{5}$
d. ∞
e. does not exist

____ 29. Evaluate the limit $\lim_{x \to 0} \frac{\sqrt{49-x^2}-7}{9x}$ using L'Hopital's Rule if necessary.

a. $-\frac{1}{9}$
b. $-\frac{7}{9}$
c. 1
d. 0
e. does not exist

____ 30. Evaluate the limit $\lim_{x \to 0^+} \frac{3\left(e^x - 1 - x\right)}{10x^3}$ using L'Hopital's Rule if necessary.

a. $\frac{1}{20}$
b. $-\infty$
c. ∞
d. 0
e. $\frac{3}{10}$

____ 31. Evaluate the limit $\lim_{x \to 0} \frac{\arcsin(13x)}{2x}$ using L'Hopital's Rule if necessary.

a. $\frac{2}{13}$
b. 0
c. $\frac{1}{2}$
d. $\frac{13}{2}$
e. does not exist

____ 32. Evaluate the $\lim_{x \to \infty} \frac{5x^2 + 4x - 8}{9x^2 + 9}$ using L'Hôpital's Rule if necessary.

a. $\frac{1}{2}$
b. $-\frac{8}{9}$
c. $\frac{5}{9}$
d. 0
e. ∞

____ 33. Evaluate the $\lim_{x \to \infty} \frac{2x - 6}{4x^2 + 8x + 5}$ using L'Hôpital's Rule if necessary.

a. $\frac{1}{6}$
b. $\frac{1}{4}$
c. $\frac{1}{2}$
d. ∞
e. 0

____ 34. Evaluate the limit $\lim_{x \to \infty} \frac{x^5}{e^{4x}}$ using L'Hopital's Rule if necessary.

a. 0
b. $\frac{15}{128}$
c. $\frac{5}{4}$
d. 1
e. does not exist

____ 35. Evaluate the limit $\lim_{x \to \infty} \frac{\ln\left(x^3\right)}{x^{10}}$ using L'Hopital's Rule if necessary.

a. $\frac{10}{3}$
b. ∞
c. $-\infty$
d. $\frac{3}{10}$
e. 0

____ 36. Evaluate the limit $\lim_{x \to 0^+} \frac{\ln\left(x^2\right)}{x^7}$ using L'Hopital's Rule if necessary.

a. $-\infty$
b. ∞
c. $\frac{2}{7}$
d. 0
e. $\frac{7}{2}$

____ 37. Evaluate the limit $\lim_{x \to -\infty} \frac{2e^{-\frac{1}{2}x}}{x^3}$ using L'Hopital's Rule if necessary.

a. $\frac{1}{3}$
b. $\frac{1}{24}$
c. $-\infty$
d. ∞
e. 2

____ 38. Evaluate the limit $\lim_{x \to \infty} 7x \sin\left(\frac{8}{x}\right)$ using L'Hopital's Rule if necessary.

a. $\frac{8}{7}$
b. 56
c. ∞
d. 0
e. does not exist

____ 39. Evaluate the limit $\lim_{x \to 0^+} \left(e^x + 5x\right)^{5/x}$ using L'Hopital's Rule if necessary.

a. e^5
b. e^{10}
c. 1
d. e^{30}
e. $e + 5$

____ 40. Evaluate the limit $\lim_{x \to 4^+} \left(8(x-4)\right)^{x-4}$ using L'Hopital's Rule if necessary.

a. 1
b. e
c. 0
d. e^4
e. e^8

____ 41. Evaluate the limit $\lim_{x \to 8^+} \left(\frac{21x-40}{x^2-64} - \frac{x}{x-8}\right)$, using L'Hopital's Rule if necessary.

a. $\frac{3}{16}$
b. $-\frac{3}{8}$
c. $\frac{3}{8}$
d. $-\frac{3}{16}$
e. does not exist

____ 42. Determine whether the improper integral $\int_9^{11} \frac{2}{(x-10)^2}\,dx$ diverges or converges. Evaluate the integral if it converges.

a. 100
b. 2
c. $\frac{1}{50}$
d. $\frac{22}{9}$
e. diverges

____ 43. Determine whether the improper integral $\int_4^{\infty} \frac{2}{x^3}\,dx$ diverges or converges. Evaluate the integral if it converges.

a. $\frac{1}{2}$
b. $\frac{1}{16}$
c. 2
d. $\frac{1}{32}$
e. diverges

____ 44. Determine whether the improper integral $\int_0^{\infty} xe^{-x/3}\,dx$ diverges or converges. Evaluate the integral if it converges.

a. 9
b. $e^{-1/3}$
c. $-\frac{1}{3}$
d. 3
e. diverges

____ 45. Determine whether the improper integral $\int_0^{\infty} e^{-3x}\sin(3x)dx$ diverges or converges. Evaluate the integral if it converges.

a. 18
b. 9
c. $\frac{1}{6}$
d. 3
e. diverges

____ 46. Determine whether the improper integral $\int_{-\infty}^{\infty} \frac{9}{49+x^2}\,dx$ diverges or converges. Evaluate the integral if it converges.

a. $\frac{9}{49}$
b. $\frac{9}{7}\pi$
c. $\frac{9}{49}\pi$
d. $\frac{9}{7}$
e. diverges

____ 47. Determine whether the improper integral $\int_{0}^{\infty} \frac{e^{2x}}{1+e^{4x}}\,dx$ diverges or converges. Evaluate the integral if it converges.

a. diverges
b. converges

____ 48. Determine whether the improper integral $\int_{0}^{1} \frac{1}{\sqrt[3]{1-x}}\,dx$ diverges or converges. Evaluate the integral if it converges.

a. 3
b. $\frac{2}{3}$
c. $\frac{3}{2}$
d. 2
e. diverges

____ 49. Determine whether the improper integral $\int_{0}^{\pi/4} 3\tan\theta\,d\theta$ diverges or converges.

a. diverges
b. converges

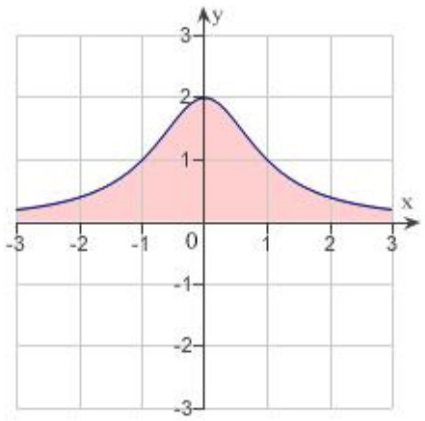
____ 50. Determine whether the improper integral $\int_{7}^{8} \frac{1}{\sqrt{64-x^2}}\,dx$ diverges or converges. Evaluate the integral if it converges.

a. $\frac{\pi}{2} - \arcsin\left(\frac{7}{8}\right)$
b. $\frac{\pi}{16} - \arcsin\left(\frac{7}{8}\right)$
c. $\frac{\pi}{2} - \arcsin\left(\frac{7}{64}\right)$
d. $\frac{\pi}{16} - \arcsin\left(\frac{7}{64}\right)$
e. diverges

____ 51. Determine whether the improper integral $\int_{0}^{\infty} \frac{10}{\sqrt{x}\,(x+81)}\,dx$ diverges or converges. Evaluate the integral if it converges.

a. $\frac{10}{81}\pi$
b. $\frac{10}{9}\pi$
c. diverges
d. $\frac{10}{81}$
e. $\frac{10}{9}$

____ 52. Find the area between the *x*-axis and the graph of the function $y = \frac{2}{x^2+1}$.



a. 2π
b. 2
c. 3
d. 3π
e. 0

____ 53. Suppose the capitalized cost C is given by $C = C_0 + \int_0^n c(t)e^{-rt}\,dt$, where C_0 is the original investment, t is the time in years, r is the annual interest rate compounded continuously, and $c(t)$ is the annual cost of maintenance. Find the capitalized cost C of an asset forever if $C_0 = 670,000, c(t) = 22,000$, and $r = 0.09$. Round your answer to the nearest dollar.

a. \$914,433
b. \$671,980
c. \$914,456
d. \$914,444
e. \$693,980

____ 54. Suppose the capitalized cost C is given by $C = C_0 + \int_0^n c(t)e^{-rt}\,dt$, where C_0 is the original investment, t is the time in years, r is the annual interest rate compounded continuously, and $c(t)$ is the annual cost of maintenance. Find the capitalized cost C of an asset forever if $C_0 = 625,000, c(t) = 23,500(1 + 0.07t)$, and $r = 0.05$. Round your answer to the nearest dollar.

a. 681,400
b. 1,753,400
c. 1,799,511
d. 681,420
e. 1,753,000

____ 55. Determine whether the improper integral $\int_0^2 \frac{3}{x}\,dx$ diverges or converges. Evaluate the integral if it converges.

a. 3
b. 2
c. 1
d. $\frac{2}{3}$
e. diverges

Math2414 TestReview 2 Fall 2019
Answer Section

MULTIPLE CHOICE

1. ANS: D PTS: 1 DIF: Medium REF: Section 8.1
   OBJ: Evaluate the indefinite integral of a function using substitution
   MSC: Skill
2. ANS: A PTS: 1 DIF: Medium REF: Section 8.1
   OBJ: Evaluate the indefinite integral of an improper fraction MSC: Skill
3. ANS: E PTS: 1 DIF: Easy REF: Section 8.1
   OBJ: Evaluate the indefinite integral of a function using substitution
   MSC: Skill
4. ANS: D PTS: 1 DIF: Medium REF: Section 8.1
   OBJ: Evaluate the indefinite integral of a function using substitution
   MSC: Skill
5. ANS: E PTS: 1 DIF: Difficult REF: Section 8.1
   OBJ: Evaluate the indefinite integral by completing the square MSC: Skill
6. ANS: A PTS: 1 DIF: Medium REF: Section 8.1
   OBJ: Evaluate a definite integral using substitution MSC: Skill
7. ANS: A PTS: 1 DIF: Medium REF: Section 8.1
   OBJ: Evaluate a definite integral using substitution MSC: Skill
8. ANS: A PTS: 1 DIF: Medium REF: Section 8.2
   OBJ: Evaluate the indefinite integral of a function using integration by parts
   MSC: Skill
9. ANS: A PTS: 1 DIF: Medium REF: Section 8.2
   OBJ: Evaluate the indefinite integral of a function using integration by parts
   MSC: Skill
10. ANS: E PTS: 1 DIF: Medium REF: Section 8.2
    OBJ: Evaluate the indefinite integral of a function using integration by parts
    MSC: Skill
11. ANS: B PTS: 1 DIF: Easy REF: Section 8.3
    OBJ: Evaluate an indefinite integral involving powers of sines and cosines
    MSC: Skill
12. ANS: C PTS: 1 DIF: Medium REF: Section 8.3
    OBJ: Evaluate an indefinite integral involving powers of sines and cosines
    MSC: Skill
13. ANS: B PTS: 1 DIF: Medium REF: Section 8.3
    OBJ: Evaluate an indefinite integral involving powers of secants and tangents
    MSC: Skill
14. ANS: A PTS: 1 DIF: Medium REF: Section 8.4
    OBJ: Evaluate the indefinite integral of a function using a sine substitution
    MSC: Skill
15. ANS: A PTS: 1 DIF: Medium REF: Section 8.4
    OBJ: Evaluate the indefinite integral of a function using a sine substitution
    MSC: Skill
16. ANS: A PTS: 1 DIF: Medium REF: Section 8.4
    OBJ: Evaluate the indefinite integral of a function using a secant substitution

MSC: Skill

17. ANS: D PTS: 1 DIF: Medium REF: Section 8.4
OBJ: Evaluate the indefinite integral of a function using a tangent substitution
MSC: Skill

18. ANS: B PTS: 1 DIF: Medium REF: Section 8.4
OBJ: Evaluate the indefinite integral of a function using a tangent substitution
MSC: Skill

19. ANS: B PTS: 1 DIF: Medium REF: Section 8.4
OBJ: Evaluate the definite integral of a function using a tangent substitution
MSC: Skill

20. ANS: E PTS: 1 DIF: Medium REF: Section 8.5
OBJ: Write the form of the partial fraction decomposition for a given rational expression
MSC: Skill

21. ANS: A PTS: 1 DIF: Easy REF: Section 8.5
OBJ: Evaluate the indefinite integral of a function using partial fractions with linear factors
MSC: Skill

22. ANS: B PTS: 1 DIF: Medium REF: Section 8.5
OBJ: Evaluate the indefinite integral of a function using partial fractions with linear factors
MSC: Skill

23. ANS: C PTS: 1 DIF: Medium REF: Section 8.5
OBJ: Evaluate the indefinite integral of a function using partial fractions with quadratic factors
MSC: Skill

24. ANS: B PTS: 1 DIF: Medium REF: Section 8.5
OBJ: Evaluate the definite integral of a function using partial fractions with linear factors
MSC: Skill

25. ANS: C PTS: 1 DIF: Easy REF: Section 8.6
OBJ: Evaluate the indefinite integral of a function using integration by parts
MSC: Skill

26. ANS: C PTS: 1 DIF: Easy REF: Section 8.7
OBJ: Evaluate the limit of a function using L'Hopital's Rule if necessary
MSC: Skill

27. ANS: C PTS: 1 DIF: Easy REF: Section 8.7
OBJ: Evaluate the limit of a function using L'Hopital's Rule if necessary
MSC: Skill

28. ANS: B PTS: 1 DIF: Easy REF: Section 8.7
OBJ: Evaluate the limit of a function using L'Hopital's Rule if necessary
MSC: Skill

29. ANS: D PTS: 1 DIF: Easy REF: Section 8.7
OBJ: Evaluate the limit of a function using L'Hopital's Rule for 0/0 form
MSC: Skill

30. ANS: C PTS: 1 DIF: Medium REF: Section 8.7
OBJ: Evaluate the limit of a function using L'Hopital's Rule for 0/0 form
MSC: Skill

31. ANS: D PTS: 1 DIF: Easy REF: Section 8.7
OBJ: Evaluate the limit of a function using L'Hopital's Rule for 0/0 form
MSC: Skill

32. ANS: C PTS: 1 DIF: Easy REF: Section 8.7
OBJ: Evaluate the limit of a function using L'Hopital's Rule for infinity/infinity form
MSC: Skill

33. ANS: E PTS: 1 DIF: Easy REF: Section 8.7
OBJ: Evaluate the limit of a function using L'Hopital's Rule for infinity/infinity form
MSC: Skill
34. ANS: A PTS: 1 DIF: Easy REF: Section 8.7
OBJ: Evaluate the limit of a function using L'Hopital's Rule for infinity/infinity form
MSC: Skill
35. ANS: E PTS: 1 DIF: Easy REF: Section 8.7
OBJ: Evaluate the limit of a function using L'Hopital's Rule for infinity/infinity form
MSC: Skill
36. ANS: A PTS: 1 DIF: Easy REF: Section 8.7
OBJ: Evaluate the limit of a function using L'Hopital's Rule for 0/0 form
MSC: Skill
37. ANS: C PTS: 1 DIF: Easy REF: Section 8.7
OBJ: Evaluate the limit of a function using L'Hopital's Rule for infinity/infinity form
MSC: Skill
38. ANS: B PTS: 1 DIF: Medium REF: Section 8.7
OBJ: Evaluate the limit of a function using L'Hopital's Rule for 0*infinity form
MSC: Skill
39. ANS: D PTS: 1 DIF: Difficult REF: Section 8.7
OBJ: Evaluate the limit of a function using L'Hopital's Rule for 1^(infinity) form
MSC: Skill
40. ANS: A PTS: 1 DIF: Medium REF: Section 8.7
OBJ: Evaluate the limit of a function using L'Hopital's Rule for 0^0 form
MSC: Skill
41. ANS: D PTS: 1 DIF: Medium REF: Section 8.7
OBJ: Evaluate the limit of a function using L'Hopital's Rule for infinity - infinity form
MSC: Skill
42. ANS: E PTS: 1 DIF: Easy REF: Section 8.8
OBJ: Evaluate an improper integral if it converges MSC: Skill
43. ANS: B PTS: 1 DIF: Easy REF: Section 8.8
OBJ: Evaluate an improper integral if it converges MSC: Skill
44. ANS: A PTS: 1 DIF: Medium REF: Section 8.8
OBJ: Evaluate an improper integral if it converges MSC: Skill
45. ANS: C PTS: 1 DIF: Difficult REF: Section 8.8
OBJ: Evaluate an improper integral if it converges MSC: Skill
46. ANS: B PTS: 1 DIF: Medium REF: Section 8.8
OBJ: Evaluate an improper integral if it converges MSC: Skill
47. ANS: B PTS: 1 DIF: Medium REF: Section 8.8
OBJ: Test an improper integral for convergence MSC: Skill
48. ANS: C PTS: 1 DIF: Medium REF: Section 8.8
OBJ: Evaluate an improper integral if it converges MSC: Skill
49. ANS: B PTS: 1 DIF: Medium REF: Section 8.8
OBJ: Test an improper integral for convergence MSC: Skill
50. ANS: A PTS: 1 DIF: Easy REF: Section 8.8
OBJ: Evaluate an improper integral if it converges MSC: Skill
51. ANS: B PTS: 1 DIF: Difficult REF: Section 8.8
OBJ: Evaluate an improper integral if it converges MSC: Skill
52. ANS: A PTS: 1 DIF: Medium REF: Section 8.8
OBJ: Calculate the area bounded by a function MSC: Application

53. ANS: D PTS: 1 DIF: Medium REF: Section 8.8
OBJ: Evaluate an improper integral in applications MSC: Application
54. ANS: E PTS: 1 DIF: Medium REF: Section 8.8
OBJ: Evaluate an improper integral in applications MSC: Application
55. ANS: E PTS: 1 DIF: Easy REF: Section 8.8
OBJ: Determine if integral diverges MSC: Skill