

Calculus II Final Exam Fall 2015

- 1a. $\frac{2}{7}(x-2)^{7/2} + \frac{8}{5}(x-2)^{5/2} + \frac{8}{3}(x-2)^{3/2} + C$
- 1b. $\frac{1}{3}x^3 \ln 5x - \frac{1}{9}x^3 + C$
- 1c. $\frac{1}{6}$
- 1d. $\frac{1}{3}\sin^3 x - \frac{1}{5}\sin^5 x + C$
- 1e. $\sqrt{x^2-9} - 3 \sec^{-1}\left(\frac{x}{3}\right) + C$
- 1f. $\frac{5}{3}\ln|x-2| - \frac{2}{3}\ln|x+1| + C$
2. $\int_{-1}^3 ((2x-x^2) - (-3)) dx$
3. $\int_{-1}^2 \pi((x+3)^2 - (x^2+1)^2) dx$
4. $\frac{13\pi}{3}$
5. $\lim_{b \rightarrow \infty} \int_0^b \frac{1}{2x+1} dx$, diverges
- 6a. diverges
- 6b. converges
- 6c. converges
7. converges absolutely
- 8a. $\frac{1}{e}$
- 8b. $-3 < x < 5; \frac{1}{5-x}$
- 9a. $p(x) = 1 + 3(x-1) + 3(x-1)^2 + (x-1)^3$
- 9b. $\sum_{n=0}^{\infty} \frac{2^n}{n!} x^{n+2}, |x| < \infty$
10. $A = (1,0), B = \left(1.4, \frac{\pi}{6}\right), C = \left(1.4, \frac{\pi}{4}\right), D = \left(1.4, \frac{\pi}{3}\right), E = \left(1, \frac{\pi}{2}\right), F = \left(0.4, \frac{2\pi}{3}\right), G = \left(0, \frac{3\pi}{4}\right), H = \left(-0.4, \frac{5\pi}{6}\right), I = (-1, \pi)$



