

MATH 1272: CALCULUS II
ANSWERS TO THE ACTUAL MIDTERMS

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Midterm I

- (1) $x \sin^{-1} x + \sqrt{1-x^2} + C$
- (2) $(\frac{2}{7} \cos^3 x - \frac{2}{3} \cos x) \sqrt{\cos x} + C$
- (3) $\sqrt{x^2-9} - 3 \sec^{-1}(x/3) + C$
- (4) $9 \ln|x-3| + 16 \ln|x+2| + 20/(x+2) + C$
- (5) Approximate value: $5/2$, error: $1/6$.
- (6) Converges and equals $1/3$

Midterm II

- (1) 2π
- (2) $\frac{4}{3\pi}$
- (3) $-2/(\ln(x^2+1) + C)$
- (4) 14
- (5) $7\pi/6 - \sqrt{3}/2$
- (6) Looks just like the limaçon $c = -1$ on Figure 18 on p. 668 of the text, with the x -intercepts 0 and ± 2 and the y -intercepts 0 and -4 .

Midterm III

- (1) Absolutely convergent (Comparison or Limit Comparison Test)
- (2) Divergent (Ratio Test)
- (3) $R = 9$ (Ratio Test)
- (4) $3 + \frac{1}{3}(x-5) - \frac{1}{108}(x-5)^2$
- (5) $\pi/3$
- (6) $\langle 0, -1, 1 \rangle$