

Math 125 G - Winter 2011
Mid-Term Exam Number One

January 27, 2011

Answers

There were two versions of the exam used.

Version A - The integrand in 1(a) begins with x^4 .

1. (a) $\frac{1}{5}x^5 + \frac{5}{4}x^4 + 2 \sin x - \tan^{-1} x + C$

(b) $\frac{13}{144}(4x^2 + 5)^{18} + C$

(c) $\frac{4}{45}(3x - 5)^{5/2} + \frac{26}{27}(3x - 5)^{3/2} + C$

2. (a) $\frac{1}{20}x^4 - \frac{2}{5}x + \frac{3}{5} \ln |x| + C$

(b) $\frac{55}{8}$

(c) $\frac{1}{3}x^3 + \frac{3}{2}x^2 + 2x + C$

3. $\int_0^1 \sin(\pi x^2) dx \approx 0.5879$

4. $\frac{32}{3}$

5. $b = \sqrt[4]{\frac{150}{\pi}}$

6. 6 seconds

Version B - The integrand in 1(a) begins with x^6 .

1. (a) $-3 \cos(x) - \tan^{-1}(x) + \frac{1}{7}x^7 + \frac{7}{4}x^4 + C$

(b) $\frac{3}{46}(3x^2 + 1)^{23} + C$

(c) $\frac{2}{5}(2x - 1)^{5/2} - \frac{1}{3}(2x - 1)^{3/2} + C$

2. (a) $\frac{2}{5}x^5 - \frac{1}{2}x + 4 \ln |x| + C$

(b) $\frac{901}{24}$

(c) $\frac{1}{3}x^3 + 2x^2 + 3x + C$

3. $\int_{-1}^1 e^{x^2} dx \approx 2.568$

4. $\frac{880}{3}$

5. $b = \sqrt[4]{\frac{30}{\pi}}$

6. $-2 + 2\sqrt{21}$ seconds