Math 132, exam 1
Spring '11

Part I

1.Find one antiderivative of $f(\theta) = e^{\theta} + \sec^2\theta$.

(A) $e^{\theta} + 2\sec\theta\tan\theta$ (B) $\frac{1}{2}e^{2\theta} + \tan^2\theta$ (C) $e^{\theta} + \tan\theta$

(D) $e^{\theta} + \tan 2\theta$ (E) $\frac{1}{2}e^{2\theta} + \tan\theta$ (F) $\ln\theta + \cos^2\theta$

(G) $\ln\theta + \tan\theta$ (H) $\ln\theta + \tan^{-1}\theta$ (I) 1

(J) $e^{\theta} + \ln|\tan\theta|$

2. Evaluate

$$\int_2^3 \frac{3x^2-1}{x^3-x}\,dx$$

(B) $\ln 12$ (C) $\ln 18$ (D) $\ln 4$ (E) $\ln 8$

(G) e^{12} (H) e^{18} (I) e^{4} (J) e^{8}

3. If $f'(x) = 3x^2 + 2x + 1$ and $f(0) = 0$, find $f(2)$.

(A) 0 (B) 2 (C) 4 (D) 6 (E) 8

(F) 10 (G) 12 (H) 14 (I) 16 (J) 18

4. Evaluate the integral $\int_0^1 \sqrt{1 - x^2}\, dx$ by interpreting it geometrically.

(A) 2π (B) π (C) $\pi/3$ (D) $\pi/4$ (E) $\pi/8$

(F) 1 (G) 2 (H) 3 (I) 4 (J) 5

5. Compute

$$\int t^2 \cos(1+t^3)\,dt.$$

(A) $t^2\cos(1+t^3)+C$

(B) $-3t^4\sin(1+t^3)+C$

(C) $\frac{1}{3}\cos(1+t^3)+C$

(D) $\frac{1}{3}\sin(1+t^3)+C$

(E) $\sin(1+t^3)+2t+C$

(F) $\frac{t^2\sin(1+t^3)}{1+3t^2}+C$

(G) $-6t^3\sin(1+t^3)+C$

(H) $\sin(1+t^3)+C$

(I) $2+\cos(1+t^3)+3t^4\sin(1+t^3)+C$

(J) $\frac{1}{3}t^3\sin(1+t^3)+C$

6. Evaluate $\int_0^{\pi/2}(\cos\theta+2\sin\theta)\,d\theta$.

(A) 0 (B) 1 (C) 2 (D) 3 (E) 4

(F) 5 (G) 6 (H) 7 (I) 8 (J) 9