

**Math 130, Section &E4, Fall 2001**  
**Exam 1, September 10**

SHOW ALL WORK TO QUALIFY FOR FULL CREDIT.  
MAXIMUM POSSIBLE SCORE: 100 POINTS

1. 60 pts points Evaluate the following integrals

(a) 15 points  $\int \frac{6x+1}{3x+2} dx$

(b) 15 points  $\int x^4 \ln x dx$

(c) 15 points  $\int x \sin^2 x dx$

(d) 15 points  $\int_0^{2\sqrt{3}} \frac{x^3}{\sqrt{16-x^2}} dx$

2. 40 points Consider the following integrals. Determine if they are convergent or divergent (explain why). If they are convergent, evaluate them.

(a) 20 points  $\int_1^9 \frac{1}{(x-9)^{1/3}} dx$

(b) 20 points  $\int_0^\infty \frac{x}{x^2+1} dx$