Homework questions for sections 8.3, 8.4 *Math 104, Fall 2007*

Credit is given only if supporting work is shown. Only correct answers receive credit. No partial credit is given.

1. Evaluate the integral

$$\int_5^6 \frac{1}{x^2\sqrt{x^2-16}}dx.$$

A.) $-\frac{1}{20}\sqrt{21}+\frac{1}{6}\sqrt{2}$ B.) $-\frac{4}{45}+\frac{1}{18}\sqrt{3}$ C.) $\frac{1}{150}\sqrt{11}$

D.) $-\frac{3}{80}+\frac{1}{48}\sqrt{5}$ E.) $-\frac{1}{8}\sqrt{2}+\frac{3}{100}\sqrt{69}$ F.) $\frac{2}{175}\sqrt{6}$

2. Solve the indefinite integral

$$\int \frac{8x}{x^2(x^2-4)}dx.$$

A.) $\ln \frac{x^2-4}{x}$

B.) $\ln \frac{x^2-4}{x^2}$

C.) $\ln \frac{x^2-4}{x^3}$

D.) $\ln \frac{x-2}{x(x+2)}$

E.) $\ln \frac{x+2}{x(x-2)}$

F.) $\ln \frac{x}{x^2-4}$

3. Evaluate the integral

$$\int_1^2 \frac{36}{x^3 + 6x^2} dx.$$

A.) $3 + \ln \frac{4}{7}$ B.) $2 + \ln \frac{5}{8}$ C.) $1 + \ln \frac{2}{3}$ D.) $3 - \ln \frac{4}{7}$ E.) $2 - \ln \frac{5}{8}$ F.) $1 - \ln \frac{2}{3}$