Section 7.8: Additional Problems Solutions

1. Determine if the integral is convergent or divergent. Evaluate the integral if it is convergent.

$$\int_{-2}^{0} \frac{1}{\sqrt{4-x^2}}\, dx$$

2. Determine if these integrals converge or diverge. Evaluate the integral if it is convergent.

$$\int_{3}^{\infty} \frac{2x}{e^x}\, dx$$

3. Determine if these integrals converge or diverge. Evaluate the integral if it is convergent.

$$\int_{0}^{9} \frac{1}{\sqrt[3]{x-1}}\, dx$$

4. Determine if this integral is convergent or divergent. Do not evaluate the integral.

$$\int_{2}^{\infty} \frac{3\cos(x)+5}{\sqrt[3]{x}}\, dx$$

5. Determine if this integral is convergent or divergent. Do not evaluate the integral.

$$\int_{2}^{\infty} \frac{3\cos(x)+5}{x^3}\, dx$$

6. Determine if this integral converges or diverges. If it converges, find some bounds for the value of the integral.

$$\int_{2}^{\infty} \frac{5+\sin(x)}{x^4}\, dx$$

7. Determine if the integral is convergent or divergent. Evaluate the integral if it is convergent.

$$\int_{1}^{\infty} \frac{24x-4}{(x+2)(3x^2+1)}\, dx$$

8. This problem is for those students that want to see how we determin which values of p make this integral converge. The proof presented here is not an exam question.

   Find the values of p where this integral will converge?

$$\int_{1}^{\infty} \frac{1}{x^p}\, dx$$