

Math 0120 Homework 11 is due : 08/29/2013 at 03:51pm EDT.

Reference: Berresford, Sections 5.5, 5.6, 6.1

1. (1 pt)

Find consumer's surplus at the market equilibrium point given that the demand function is

$$p = \sqrt{225 - 48x} \text{ and the supply function is } p = x + 6.$$

Answer: _____

2. (1 pt) In May 1991, *Car and Driver* described a Jaguar that sold for 980,000 dollars. Suppose that at that price only 40 have been sold. If it is estimated that 325 could have been sold if the price had been 540,000 dollars. Assuming that the demand curve is a straight line, and that 540,000 dollars and 325 are the equilibrium price and quantity, find the consumer surplus at the equilibrium price.

surplus = _____ thousands of dollars

3. (1 pt) Find the following integral. Note that you can check your answer by differentiation.

$$\int t^4 (t^5 - 6)^5 dt = \underline{\hspace{2cm}}$$

4. (1 pt) Find the following integral. Note that you can check your answer by differentiation.

$$\int \frac{\ln^2(z)}{z} dz = \underline{\hspace{2cm}}$$

5. (1 pt) Find the following integral. Note that you can check your answer by differentiation.

$$\int \frac{e^{4x}}{8 + e^{4x}} dx = \underline{\hspace{2cm}}$$

6. (1 pt) Use the Fundamental Theorem of Calculus to find

$$\int_1^8 \frac{e^{\sqrt[3]{x}}}{\sqrt[3]{x^2}} dx = \underline{\hspace{2cm}}$$

7. (1 pt) Evaluate the indefinite integral.

$$\int \frac{x^5}{x^6 + 7} dx = \underline{\hspace{2cm}} + C.$$

8. (1 pt) Find the integral

$$\int x^4 \ln(x) dx = \underline{\hspace{2cm}}$$

9. (1 pt) Evaluate the definite integral.

$$\int_0^2 t e^{-t} dt = \underline{\hspace{2cm}}$$

10. (1 pt) Evaluate the definite integral.

$$\int_4^5 \ln x^{24} dx$$

Answer: _____