

Math 122 Sections 5.6 and 6.4 Study Guide

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1 Section 5.6.

Problem 1) Determine the average value the following functions take on in the specified interval:

(a) $f(x) = \frac{\ln(x)}{x}$, over $[3, 5]$.

(b) $f(x) = \frac{1}{\sqrt{t+1}}$ over $[3, 8]$.

(c) $f(x) = e^{3x}$ over $[0, 4]$.

(d) $f(x) = \frac{1}{x \ln(x)}$ over $[3, 5]$.

2 Section 6.4.

Problem 2) Suppose we have the inverse demand function $p_D(q) = 100 - 4q$, and suppose that equilibrium quantity $q^* = 5$. Determine the consumer surplus.

Problem 3) Suppose we have the inverse demand supply $p_D(q) = 35 - q^2$ and the inverse supply function $p_S(q) = 3 + q^2$. Determine the producer and consumer surplus.

Problem 4) Suppose we have the supply function $S(p) = 10p - 30$ and demand function $Q(p) = 30 - 2p$. Determine the producer and consumer surplus.