

Math 111B - Winter 2003

Final Exam

Hints and Answers

1. (a) ANSWER: \$10  
(b) ANSWER:  $[2, 3.5]$   
(c) ANSWER: \$4500  
(d) ANSWER:  $[550, 600]$
2. (a)  
(b) HINT: Set  $f(x) = g(x)$  and solve for  $x$ .  
ANSWER:  $x = 0.21, x = 6.46$   
(c) HINT: Start by finding the vertex of each graph.  
ANSWER:  $[2.5, 5]$
3. (a) HINT: Find the vertex of the quadratic function for profit.  
ANSWER: 50  
(b) HINT: Its the “ $y$ ” value of the vertex.  
ANSWER: \$15  
(c) HINT: Set the profit function equal to 6 and solve.  
(d) HINT: Starting by finding expressions for the MC and MR.  
ANSWER:  $q = 47$ .
4. (a) i. additive, increment=13  
ii. recursive:  $A(k + 1) = A(k) + 13$   
iii. explicit:  $A(k) = -3 + 13(k - 1)$   
(b) i. multiplicative, multiplier=0.5  
ii. recursive:  $A(k + 1) = 0.5A(k)$   
iii. explicit:  $A(k) = 3072 \cdot (0.5)^{k-1}$   
(c) neither
5. (a) ANSWER: 5.97%  
(b) HINT: Start by finding an expression for the amount of money in an account after  $t$  years.  
ANSWER: 78.80 years  
(c) ANSWER: 6.07 years
6. (a) ANSWER: \$5.91  
(b) ANSWER:  $P = \$8960.50$   
(c) ANSWER:  $t = 25.30$  years