

MATH 111B – EXAM I Hints and Answers
Version Alpha
Autumn 2010

1. (a) (4 points) HINT: Draw the diagonal line through the TR graph at $q = 17$ and compute its slope.
ANSWER: $\sim \$0.55$ per Trinket
 - (b) (6 points) HINT: Draw the secant line through the TR graph at $q = 3$ and $q = 3.001$ thousand Trinkets.
ANSWER: ~ 1.3 dollars or dollars/Trinket
 - (c) (2 points) HINT: Find the “ y ”-coordinate of the highest point on the TR graph.
ANSWER: ~ 10.75 thousand dollars
 - (d) (3 points) ANSWER: The TC graph is the line with “ y ”-intercept 2 thousand dollars and slope 0.50.
 - (e) (2 points) HINT: Find the quantity at which the vertical gap between TR and TC is the largest.
ANSWER: $q \approx 9$ thousand Trinkets
2. (3 points each)
 - (a) ANSWER: $\frac{f(x + 0.1) - f(x)}{0.1}$
 - (b) ANSWER: ~ 0.19
 - (c) HINT: Draw the diagonal line with slope $\frac{2}{5}$ and determine where it intersects the graph of $f(x)$.
ANSWER: $x \approx 7.8$
 - (d) ANSWER: ~ 0.054
 - (e) ANSWER: any of $\sim 2.6, 8.2, \text{ or } 18.7$
3. (a) (2 points) ANSWER: $\$0$
 - (b) (2 points) HINT: Shutdown price is the smallest value of AVC . This occurs at the quantity at which AVC and MC are equal.
ANSWER: $\$12$ per Thing
 - (c) (3 points) HINT: $AVC(6) = \frac{VC(6)}{6} = 15$. So, $VC(6) = 15 \cdot 6$.
ANSWER: $\$90$
 - (d) (5 points) HINT: $AVC(3) = \frac{VC(3)}{3} = 24$. So, $VC(3) = 24 \cdot 3$ and $TC(3) = VC(3) + FC$.
ANSWER: $\$472$
 - (e) (6 points) HINT: $AVC(5) = \frac{VC(5)}{5} = 17.33$. So, $VC(5) = 17.33 \cdot 5$. Then $TC(5) = VC(5) + FC$ and $AC(5) = \frac{TC(5)}{5}$.
ANSWER: $\$97.33$