

MATH 111 – EXAM I Hints and Answers

Version 1

Autumn 2005

1. (a) (3 points)
- (b) (4 points) HINT: Compute the slope of the line that goes through the points (2, 4) and (50, 20). If this slope is $\frac{1}{3}$, then the point (50, 20) is on the line.
ANSWER: Yes!
2. (a) (2 points) ANSWER: After 4 seconds, the object has traveled 7 feet.
- (b) (4 points) Translation: $D(3 + h) - D(3) = 12$; $h \approx 11.4$
- (c) (4 points) ANSWER: average speed $\approx \frac{1}{3}$ feet per second
- (d) (4 points) ANSWER: $t \approx 5.2$ seconds
3. (4 points each)
 - (a) ANSWER: $AC \approx 2.5$ dollars
 - (b) ANSWER: $VC \approx 350$ dollars
 - (c) ANSWER: $BEP \approx 0.7857$ dollars
 - (d) HINT: The total revenue graph is a diagonal line with slope 1.10. Draw TR and use the rolling ruler method to find the quantity at which the tangent line to TC is parallel to TR .
ANSWER: $q \approx 1300$ Things
4. (a) (3 points) HINT: Find the quantity at which $MR = MC$.
ANSWER: $q \approx 1330$ Objects
- (b) (3 points) HINT: The smallest value of MC is the “ y ”-coordinate of the lowest point on the MC graph.
ANSWER: smallest $MC \approx \$2.20$
- (c) (3 points) HINT: The change in total cost as quantity changes from 800 to 801 Objects is $MC(800)$.
ANSWER: $TC(801) - TC(800) = MC(800) \approx \2.90
- (d) (4 points) HINT: The change in total revenue as quantity changes from 400 to 401 Objects is $MR(400)$: $MR(400) \approx \$11.50$. So, $TR(401) = \$7500 + 11.50$.
ANSWER: $TR(401) \approx \$7511.50$