Business Calculus | Math 121
Mett | April 23, 2003

NAME: _____

row: _____(count from your left)

1. The selling price p (in dollars) of an item depends on the quantity x (in pounds) according the the function $p(x) = \dfrac{60}{\sqrt{x}}$. Find a formula for the revenue (in dollars) $R(x)$.
2. The cost C (in dollars) of manufacturing quantity x (pounds) is linear, and we know that it costs \$110 to manufacture 2 pounds, while it costs \$150 to manufacture 10 pounds. Find a formula for the cost (in dollars) $C(x)$.
3. Find the *break-even* quantity (or quantities) x.
4. Find a formula for the profit $P(x)$.
5. Find the marginal profit when production is 10 pounds. Be sure to include the correct *units* for your answer.
6. Find the maximum profit.
7. Find the production level and selling price that correspond to maximal profit.

ANSWERS:

1. $R(x) = 60\sqrt{x}$
2. $C(x) = 5x + 100$
3. $x = 4, 100$
4. $P(x) = 60\sqrt{x} - 5x - 100$
5. 4.486832980 (dollars per pound)
6. 80 (dollars)
7. production level = $x = 36$ (pounds) and price = 10 (dollars)