



3. Joe Mahma owns a rocking chair business. It costs Joe  $C(q)$  to produce  $q$  chairs and he makes  $R(q)$  for  $q$  chairs. Let  $C(150) = 10000$  and  $R(150) = 15000$ .

(a) Determine the profit for a quantity of 150 chairs. (Show work)

(b) Suppose  $C'(150) = 12.3$  and  $R'(150) = 11.2$ . Should the company increase or decrease production? Explain.

(c) Estimate the change in profit when producing 151 chairs instead of 150 chairs.

4. Let  $C(q)$  be the solid line,  $R(q)$  be the semi-dotted line, and the dotted line be when  $q = 100$  in the graph below.

(a) Draw the marginal revenue and marginal cost functions on the graph when  $q = 100$  (Be sure to label them MR and MC).

(b) Should the company construct and sell the 101<sup>st</sup> unit? Explain.

