

**Example 1.** The total cost of T-shirts is  $C(q) = q^3 - 13q^2 + 51q$  for  $0 \leq q \leq 10$ .

- (a) Estimate using the graph of  $C(q)$  where  $a(q)$  has a minimum.
- (b) Solve for  $q$  using Calculus and algebra to minimize  $a(q)$ .

**Example 2.** (Based on Hughes-Hallett, 3e, 4.5#10) The marginal cost at a production level of 2000 units of an item is \$10 per unit and the total cost is \$30000. If the production level were increased slightly above 2000, would the following quantities increase or decrease, or is it impossible to tell? Why?

(a) Average cost

(b) Profit