

7. Hack's Berries faces a short-run total cost of production given by  $TC = Q^3 - 12Q^2 + 100Q + 1,000$ .
- What is the level of Hack's fixed cost?
  - What is Hack's short-run average variable cost of producing berries? (Express  $AVC$  as a function of  $Q$ .)
  - If the price of berries is \$60, how many berries should Hack produce? How do you know? [*Hint*: You may want to carefully graph the  $AVC$  function you derived in part (b).]
  - If the price of berries is \$73, should Hack be producing berries? Explain.
  - Use calculus to determine Hack's marginal cost.
  - Minimize average variable cost using calculus to derive the shut-down price.