

**12.** (12 pts) Suppose that a company (called All Things Food) has hired you as a consultant. You are to help them save their failing product, “Big J’s Bar-B-Q Ice Cream.” You have discovered that their cost and revenue functions (in dollars) are:

$$C(q) = 100 + 2q \quad \text{and} \quad R(q) = 15q^{.75},$$

where  $q$  is the number of ice cream containers produced.

**a)** (1 pt) What is the product’s fixed cost?

**b)** (3 pts) Last year, All Things Food produced 2400 containers of Big J’s Bar-B-Q Ice Cream. What was their profit?

**c)** (5 pts) Find formulas for marginal cost and marginal revenue, and evaluate at  $q = 2400$ .

$$MC(q) =$$

$$MC(2400) =$$

$$MR(q) =$$

$$MR(2400) =$$

**d)** (3 pts) Big J wants to increase production to do better this year. Based on the marginal revenue and marginal cost *at this point* ( $q = 2400$ ), explain whether Big J’s strategy is sound.