The problem involves finding the selling prices of candies A and B that maximize the company's profit. Let's solve it step by step.

Extracting the Problem Information:

1. Cost of Production:

- Candy A: \$2 per pound
- Candy B: \$3 per pound

2. **Demand Functions**:

$$q_a = 400(p_b - p_a)$$

$$q_b = 400(9 + p_a - 2p_b)$$

where: - p_a: price per pound of candy A - p_b: price per pound of candy B

3. Profit Function: Profit (P) is revenue minus cost:

P = Revenue from A + Revenue from B - Cost of A - Cost of B

$$P = (p_a q_a + p_b q_b) - (2q_a + 3q_b)$$

Steps to Solve:

1. Substitute the demand functions (q_a and q_b) into the profit function.
2. Simplify the profit function.
3. Differentiate P with respect to p_a and p_b.
4. Set the partial derivatives to zero to find the critical points.
5. Solve the system of equations to find the values of p_a and p_b that maximize P.

The selling prices that maximize the company's profit are:

- $p_a = \frac{11}{2} = 5.5$ dollars per pound for candy A, - $p_b = 6$ dollars per pound for candy B.