

As $MC = dC/dq$ then $dC = MCdq$. As quantity changed from 25 to 50 we have

$$\Delta C = \int_{25}^{50} (4q + 4) dq = 2q^2 \Big|_{25}^{50} + 4q \Big|_{25}^{50} = 5000 - 1250 + 200 - 100 = 3850$$