The short-run cost function of a company is given by the equation TC=200+55q, where TC is the total cost and q is the total quantity of output, both measured in thousands.
a. What is the company's fixed cost (FC)?
Total cost is the sum of fixed and variable costs (TC = FC + VC) and FC is constant for any quantity produced, so FC = $200 thousands.
b. If the company produced 100,000 units of goods, what would be its average variable cost?
AVC = (TC - FC)/q = 55q/q = $55 thousands.
c. What would be its marginal cost of production?
Marginal cost (MC) is the derivative of total cost (TC), so MC = $55 thousands for any amount of quantity produced.
d. What would be its average fixed cost?
AFC = FC/q = 200,000/100,000 = $2 thousands
e. Suppose the company borrows money and expands its factory. Its fixed cost rises by $50,000, but its variable cost falls to $45,000 per 1000 units. The cost of interest (i) also enters into the equation. Each 1-point increase in the interest rate raises costs by $3000. Write the new cost equation.
New equation will be TC = 250 + 45q + 3000i