The Public Service Company of the Southwest is regulated by an elected state utility commission. The firm has total assets of $500,000. The demand function for its services has been estimated as :

P = $250 – 0.15Q

The firm faces the following total cost function:

TC = $25,000 + $10Q

(The total cost function does not include the firm's cost of capital)

In an unregulated environment, what price would this firm charge, what output would be produced, what would total profits be, and what rate of return would the firm earn on its asset base?

Conditions of equilibrium of a competitive firm in an unregulated environment would be: MR = MC.

MR = (TR)$'$ = ($250 *Q – 0.15Q* Q)$'$ = 250 – 0.3Q

MC = (TC)$'$ = ($25,000 + $10Q)$'$ = 10

250 – 0.3Q = 10

240 = 0.3Q

Q = 800 - output would be produced

P = $250 – 0.15*8 = $130 - price would be

Total profits would be: $130*800 = $104 000

Net Income =

The formula for return on assets is:

$$ROA = \frac{Net\ Income}{Total\ Assets}$$

ROA = $104 000\$500,000 = 0.208 or 20.8% - this is a fairly high rate