Demand and Profit Maximization

$$\pi = R - C$$

$$R = P \cdot q - C(q)$$

Approximate cost?
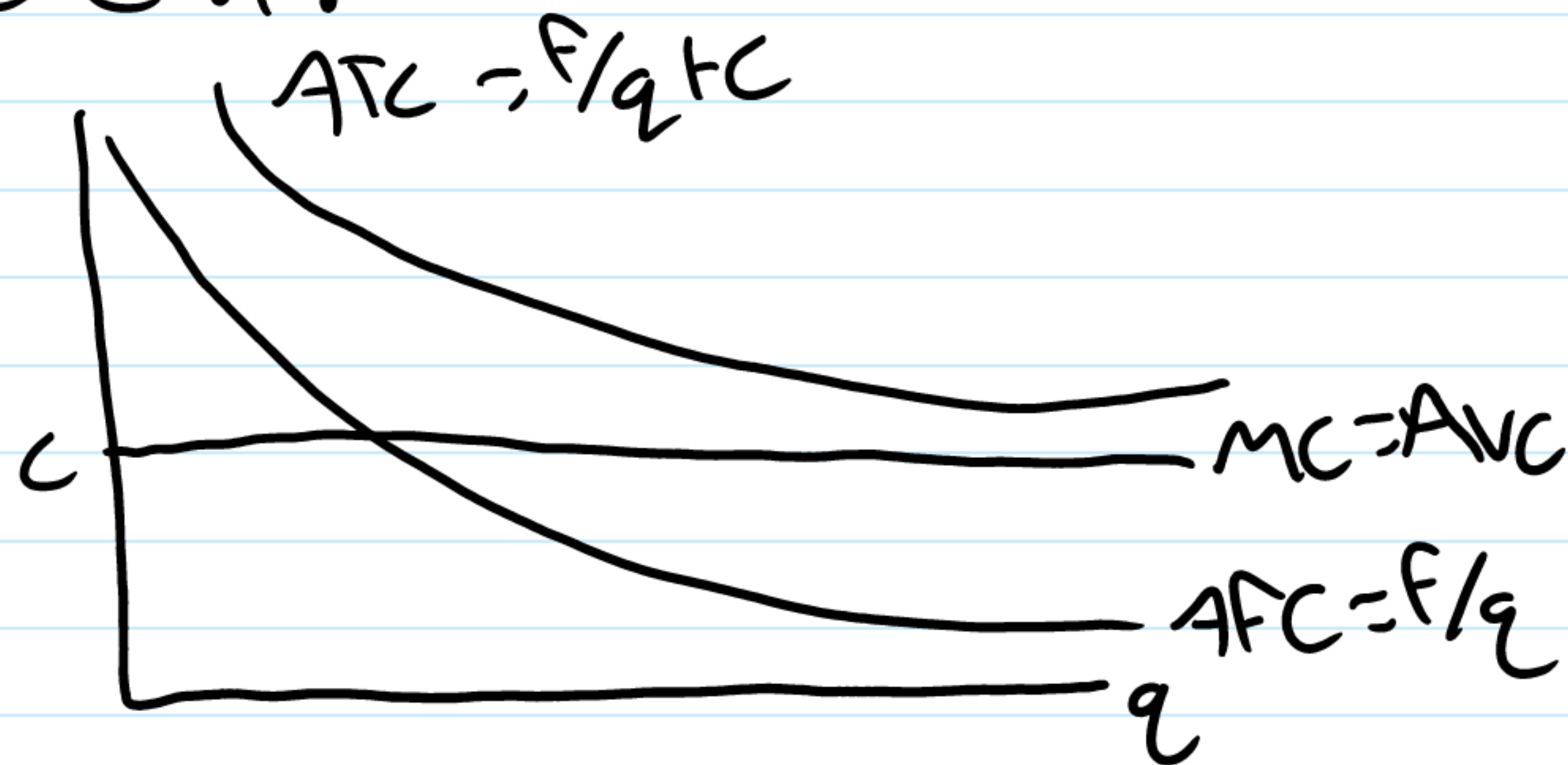
$$C = f + cq$$

$$mc = \frac{dC(q)}{dq}$$

$$ATC = C(q)/q$$
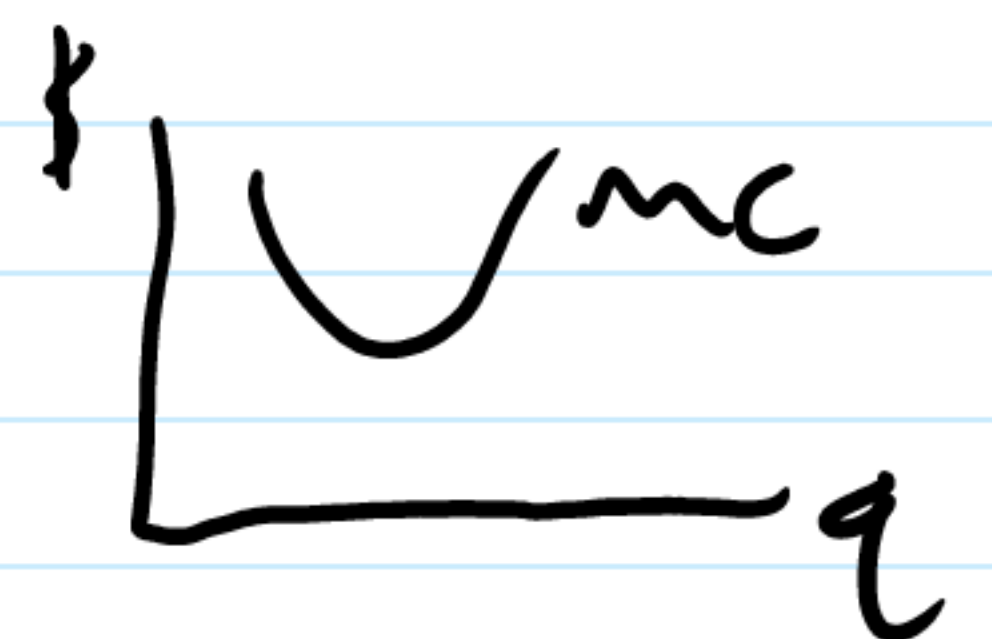
$$AVC = TVC/q$$

$$AFC = TFC/q$$

$ATC = f/q + c$

c

$MC = AVC$

$AFC = f/q$

q

Quadratic

$$C = f + aq + bq^2$$

$$\frac{dc}{dq} = a + 2bq$$

\$

mc

q

Cubic

$$C = f + aq + bq^2 + cq^3$$

$$\frac{dc}{dq} = a + 2bq + 3cq^2 \Rightarrow b < 0, c > 0, \; mc \rightarrow V \text{ shape}$$

\$ mc

q

Constant mc w/ fixed capacity

$$C = f + cq \quad q \leq \bar{q} \qquad q > \bar{q}$$

mc

c

mc

$\bar{q}$ q