

9] The supply and demand for a product are given by  $2p = q + 50$  and  $pq = 20q = 100$ , Find the equilibrium point.

Eq. point:

$$D = S$$

$$D: 2p = q + 50 \rightarrow p = \frac{q + 50}{2}$$

$$S: pq - 20q = 100 \rightarrow \cancel{p}q = \frac{100 + 20q}{q}$$

$$= p = \frac{100 + 20q}{q}$$

~~$2p = \frac{100 + 20q}{q}$~~

$$D = S$$

$$\frac{q + 50}{2} = \frac{100 + 20q}{q}$$

$$\rightarrow q(q + 50) = 2(100 + 20q)$$

$$q^2 + 50q = 200 + 40q$$

$\begin{array}{r} -40q - 200 \quad -200 \quad -40q \\ \hline \end{array}$

$$q^2 + 10q - 200 = 0$$

$$a=1, b=10, c=-200 \Rightarrow$$