Consumers’ Surplus, Producer’s Surplus and Social Gain

Suppose that the demand function for a product is given to be  \( D(q) = 960 - q^2 \) and the supply function is given to be \( S(q) = q^2 + 160 \):

a) The point of equilibrium is \((20, 560)\). This is found by setting \( D(q) = S(q) \)

b) Consumers’ Surplus  \( = \int_{0}^{20} [D(q) - 560]dq \)

c) Producer’s Surplus  \( = \int_{0}^{20} [560 - S(q)]dq \)

d) Social Gain  \( = \int_{0}^{20} [D(q) - S(q)]dq \)  or  Social Gain = CS + PS

![Demand and Supply graph](image-url)