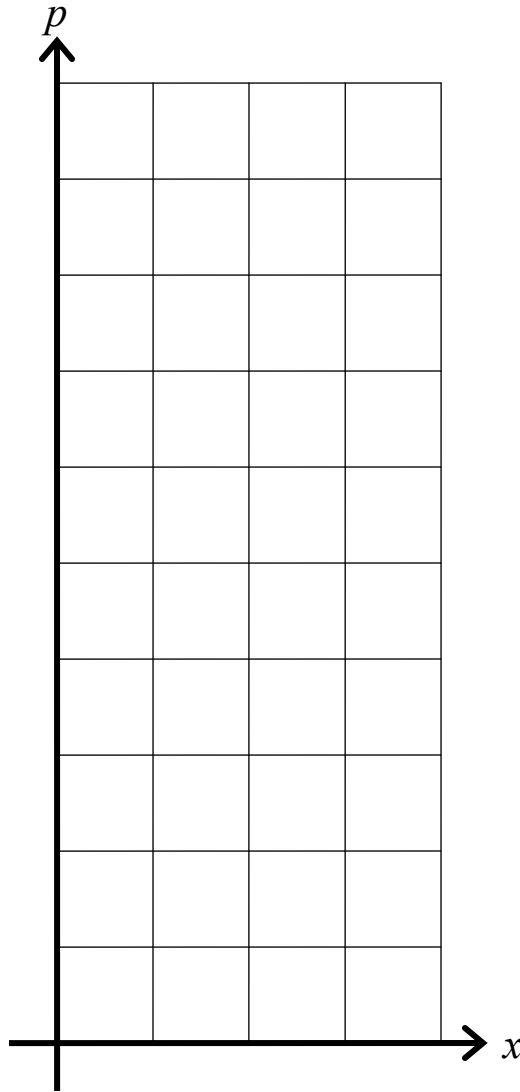


Class Drill 19: Finding the Equilibrium Price and Consumers' and Producers' Surplus

Suppose that

- the price demand equation is $p = D(x) = 9 - x^2$
- the price-supply equation is $p = S(x) = 3 + x$.

Draw the graphs of the two equations on the grid below. Be sure to label the graphs with their corresponding equations.



Label the coordinates of the equilibrium point using a label of the form $(\bar{x}, \bar{p}) = (\quad , \quad)$.

Shade the region corresponding to the consumers' surplus and label it *CS*.

Shade the region corresponding to the producers' surplus (using a different shade) and label it *PS*.

Find the consumers' surplus. (Simplify the integrand before integrating!)

$$CS = \int_{x=0}^{x=\bar{x}} [D(x) - \bar{p}] dx =$$

Find the producers' surplus. (Simplify the integrand before integrating!)

$$PS = \int_{x=0}^{x=\bar{x}} [\bar{p} - S(x)] dx =$$