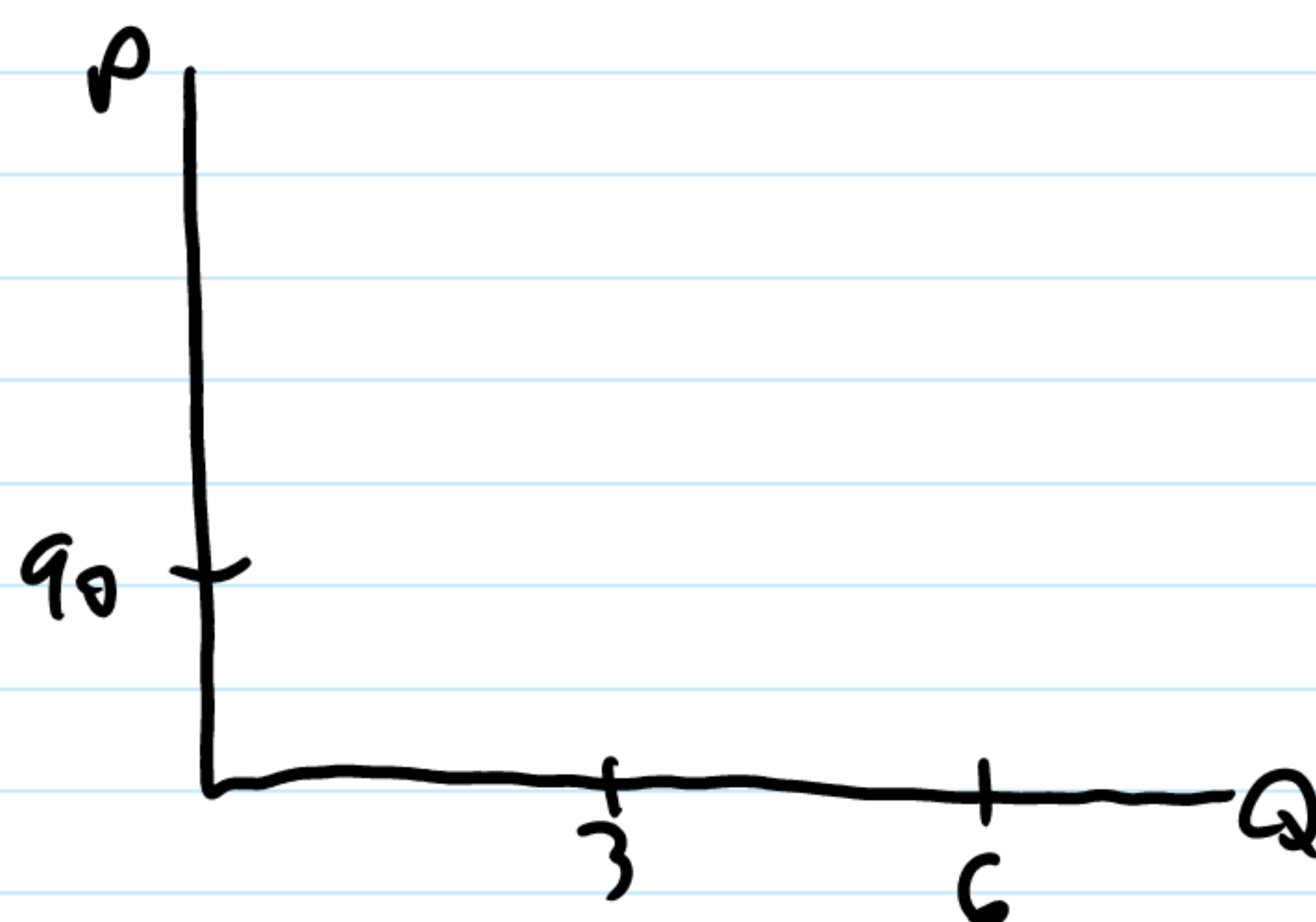


A country imports 3 billion barrels of crude oil per year and domestically produces another 3 billion barrels of crude oil per year. The world price of crude oil is \$90 per barrel. Assuming linear curves, economists estimate the price elasticity of domestic supply to be 0.25 and the price elasticity of domestic demand to be 0.1 at the current equilibrium.



- a. Consider the changes in social surplus that would result from imposition of a \$30 per barrel import fee on crude oil that would involve annual administrative costs of \$250 million. Assume that the world price will not change as a result of the country imposing the import fee, but that the domestic price will increase by \$30 per barrel. Also assume that only producers, consumers, and taxpayers within the country have standing. Determine the quantity consumed, the quantity produced domestically, and the quantity imported after the imposition of the import fee. Then estimate the annual social benefits of the import fee.



$$\epsilon^D = \frac{\Delta Q}{\Delta P} \cdot \frac{P}{Q} = -0.1$$

$$\Delta Q = 30 \left( \frac{-0.1}{15} \right)$$

$$\Delta Q = -0.2 \text{ Consumed}$$

$$\epsilon^S = \frac{\Delta Q}{\Delta P} \cdot \frac{P}{Q} = 0.25$$

$$\Delta Q = 30 \left( \frac{0.25}{30} \right) = 0.25 \text{ Produced}$$

$$Q_D = 6 - 0.2 = 5.8$$

$$Q_S = 3 + 0.25 = 3.25$$

$$Q_D - Q_S = Q_I$$

$$5.8 - 3.25 = 2.55$$