Answer all questions on a separate sheet of paper. Make sure you show your work.

1. Consider the market for large artisnal chocolate chip cookies. Suppose this market has the following inverse supply and demand curves:

\[ P(Q^D) = 10 - 0.1 \times Q^{1.5} \]
\[ P(Q^S) = 1 + 0.03 \times Q^{1.5}. \]

Price is in dollars per cookie and quantity is in thousands of cookies.

(a) Solve for the equilibrium price and quantity.

(b) Compute the consumer and producer surplus at the equilibrium.

(c) Suppose the cookie producers manage to convince the local government to pass the “cookie appreciation bill”, which prohibits the sale of large artisnal chocolate chip cookies for less than $4 in order to promote the local artisnal cookie business as a tourist attraction. Determine the resulting shortage or surplus of cookies.

(d) Compute the new consumer and producer surplus as well as the resulting deadweight loss.

(e) Suppose instead that occupy cookie street successfully protests high cookie prices and convinces the local government to pass the “cookies for the 99%” bill which prohibits the sale of large artisnal cookies for more than $2. Determine the resulting shortage or surplus of cookies.

(f) Compute the new consumer and producer surplus as well as the resulting deadweight loss.