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

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

Price is in dollars per cookie and quantity is in thousands of cookies. Remember from the last exercise, you’ve already found the equilibrium price and quantity and the consumer and producer surpluses under the unregulated market equilibrium.

(a) Suppose the chamber of commerce in cookietown decides to collect a sales tax of $1 per cookie from artisanal cookie producers in order to fund a new gymnasium for the cookietown high school. Write down the new inverse supply curve and compute the new equilibrium quantity, the price that the consumers pay, and the price that the producers receive.

(b) Using the information from the last part, compute the consumer surplus, producer surplus, government revenue, and deadweight loss under the tax.

(c) Suppose instead that the tax is collected from cookie consumers. Redo parts a) and b) under this scenario.

(d) Suppose instead of taxing the producers, the chamber of commerce decides to subsidize the cookie market by paying them $1 for each cookie they sell. Write down the new inverse supply curve and compute the new equilibrium quantity, the price that the consumers pay, and the price that the producers receive.

(e) Using the information from the last part, compute the consumer surplus, producer surplus, government revenue, and deadweight loss under the subsidy.