1) Suppose that average income rises by 10% in the South Bend area. Explain using supply and demand how this rise in income would impact the local restaurant market (i.e. what should happen to the average price of a meal and the total meals sold).

Rising income raises the demand for restaurant meals. Demand shifts to the right – both price and quantity increases.

2) Now, suppose, we know what demand and supply look like for restaurant meals:

\[ Q_d = 40 - 2P + 3I \]
\[ Q_s = 20 + 2P \]

Where \( Q \) is the number of meals sold (in thousands) per month, \( P \) is the average meal price and \( I \) is average income (in thousands). Assume that average income is equal to $20,000.

a) Calculate the equilibrium price and quantity.

\[
\begin{align*}
Q_d &= Q_s \\
40 - 2P + 3(20) &= 20 + 2P \\
100 - 2P &= 20 + 2P \\
80 &= 4P \\
P &= 20 \\
Q &= 60
\end{align*}
\]
b) Calculate total consumer surplus at the equilibrium market price.

First, solve for the price where demand equals zero:

\[ Q_d = 100 - 2P = 0 \]
\[ P = 50 \]

\[ \text{Consumer Surplus} = \frac{1}{2} (60)(50-20) = 900 \]

c) Calculate the effect on price and quantity of a 10\% increase in income.

Now, average income is equal to 22

\[ Q_d = Q_i \]
\[ 40 - 2P + 3(22) = 20 + 2P \]
\[ 106 - 2P = 20 + 2P \]
\[ 86 = 4P \]
\[ P = 21.50 \]
\[ Q = 63 \]