

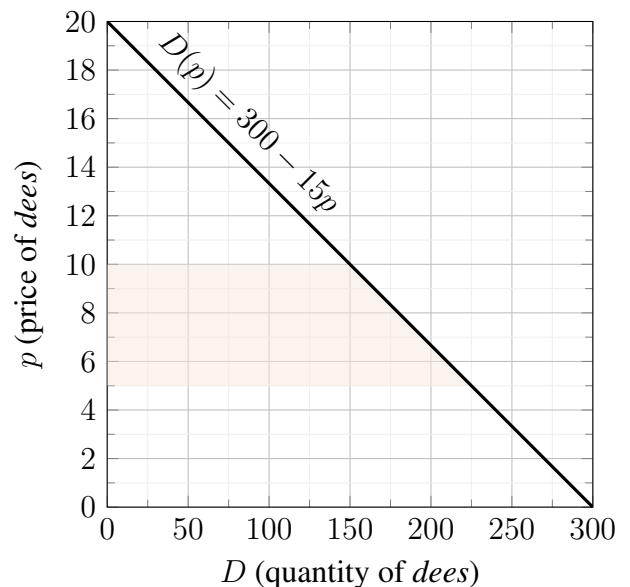
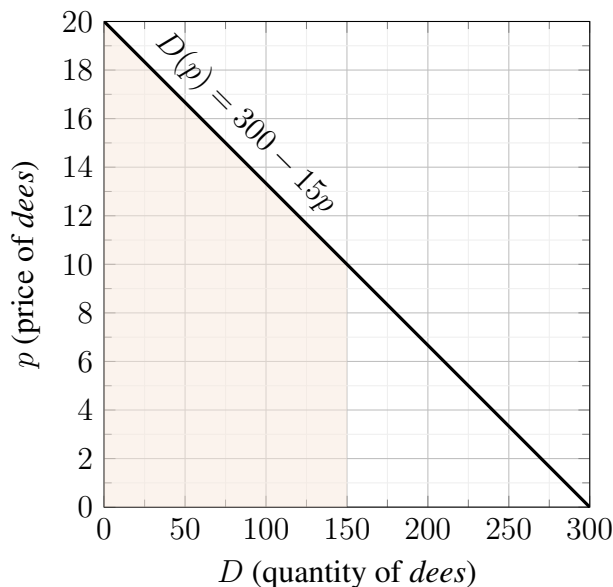
Quiz 7 - SOLUTION

Suppose that Attila's demand curve for *dees* is given by $D(p) = 300 - 15p$.

- How much is Attila's gross consumer's surplus from consuming 150 units of *dees*? Indicate this area on the graph on the left.

We can answer this question by computing the size of the shaded area in the graph on the left below.

$$GCS = \frac{1}{2} \cdot (20 + 10) \cdot 150 = 2250.$$



- If the price of *dees* changes from 5 to 10, how much is the change in Attila's consumer's surplus? Indicate this area on the graph on the right.

We can answer this question by computing the size of the shaded area in the graph on the right above.

$$\Delta CS = -\frac{1}{2} \cdot (150 + 225) \cdot 5 = -937.5$$

- Compute the price elasticity of Attila's demand for *dees* at $p = 5$.

$$\epsilon = \frac{dD(p)}{dp} \cdot \frac{p}{D(p)} = (-15) \cdot \frac{p}{300-15p} = \frac{15p}{15p-300} = \frac{p}{p-20}$$

If $p = 5$, we have that $\epsilon = \frac{5}{5-20} = -\frac{1}{3}$.

- Find Attila's inverse demand curve for *dees*.

$$p(D) = 20 - \frac{1}{15}D$$

- What price will maximize Attila's expenditure on *dees*?

Expenditure is maximized if $\epsilon = -1$, that is when $\frac{p}{p-20} = -1$. This gives $p = 10$.