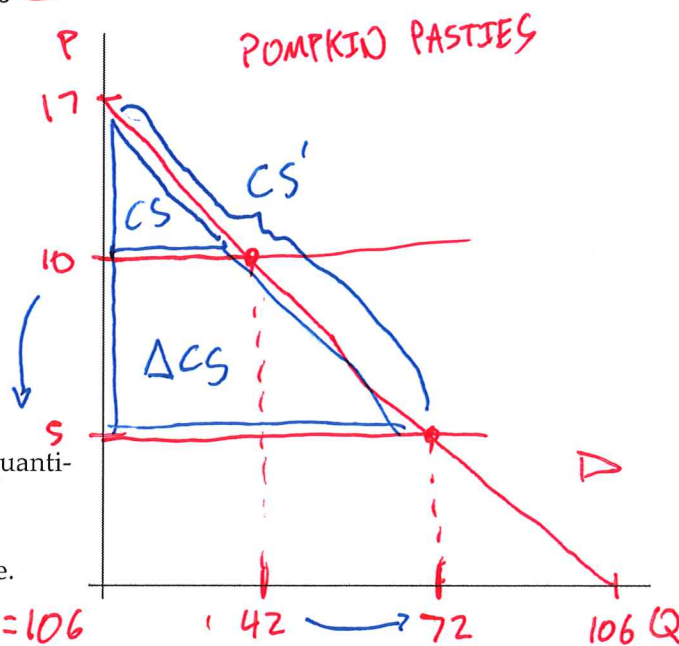


Vignette B1

Members of the wizarding have preferences for pumpkin pasties according to the following demand curve:

$$P_b = 17 - \frac{1}{6}Q_d \quad (1)$$

Prices are in galleons and quantity is in thousands of pasties.



**Q1. Plot the demand curve.**

Start by finding the vertical intercept: plug in a value of 0 for quantity.  
 $P = 17 - \frac{1}{6} \cdot 0 = 17$

Then find the horizontal intercept: plug in a value of 0 for price.

$$0 = 17 - \frac{1}{6} \cdot Q \rightarrow \frac{1}{6}Q = 17 \rightarrow Q = 17 \cdot 6 = 106$$

**Q2. Plot and find the quantity demanded at a price of 10 galleons.**

$$10 = 17 - \frac{1}{6}Q \rightarrow \frac{1}{6}Q = 17 - 10 = 7 \rightarrow \boxed{Q = 42}$$

**Q3. Plot and find the area of consumer surplus at a price of 10 galleons.**

$$CS = h \cdot b \cdot \frac{1}{2} = (17 - 10) \cdot 42 \cdot \frac{1}{2} = 7 \cdot 42 \cdot \frac{1}{2} = \boxed{147 = CS}$$

**Q4. Plot and find the quantity demanded at a price of 5 galleons.**

$$5 = 17 - \frac{1}{6}Q \rightarrow \frac{1}{6}Q = 17 - 5 = 12 \rightarrow Q = 12 \cdot 6 = \boxed{72 = Q}$$

**Q5. Plot and find the area of consumer surplus at a price of 5 galleons.**

$$CS' = \triangle + \square = \triangle = h \cdot b \cdot \frac{1}{2} = 12 \cdot 72 \cdot \frac{1}{2} = 432$$

**Q6. How much did consumer surplus change as the price dropped from 10 to 5?**

$$\triangle ACS = 432 - 147 =$$