

Answer on question #59617 -Economics - Microeconomics  
Elasticity.

Determine the elasticity at  $Q = 20$ .

D:  $P = 240 - 4Q$

### **Solution**

Point elasticity of demand is the price elasticity of demand at particular point on a curve.  
Point price elasticity of demand is calculated the following formula:

Point Price Elasticity of Demand =  $(P/Q)(\Delta Q/\Delta P)$

Where  $(\Delta Q/\Delta P)$  is the derivative of the demand function with respect to P.

Obtain the derivative of the demand function when it's expressed P as a function of Q.

Each time when quantity goes up by 1 the price goes down by 4.

$$\left(\frac{\Delta Q}{\Delta P}\right) = -\frac{1}{4}$$

Plug  $Q=20$  to demand function  $P= 240 - 4*20 =160$

$$\text{Point Price Elasticity of Demand} = -\left(\frac{160}{20}\right)\left(\frac{1}{4}\right) = -2$$

### **Answer**

The point price elasticity of demand equals -2.