

Box 6.3

Get Demand Function and Plot

Enter Elasticity and a Demand Point;

```
In[1]:= elast = -0.5;  
pbase = 4.;  
qbase = 50 000;
```

```
In[4]:= const = qbase / (pbase ^ elast);
```

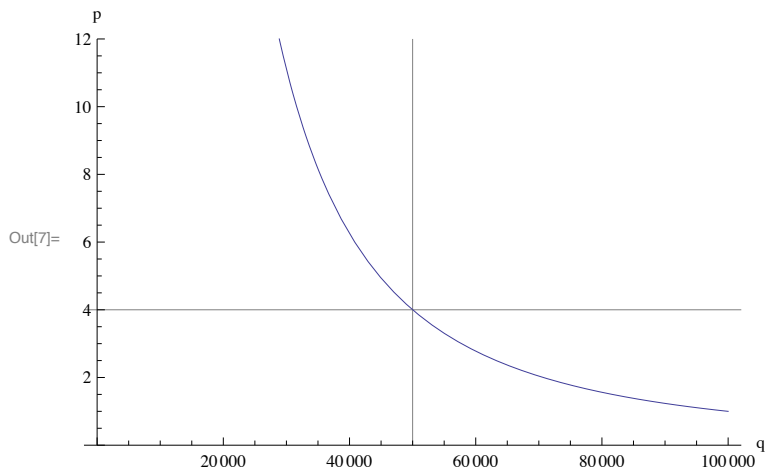
```
In[5]:= qlog = const * plog ^ elast
```

```
Out[5]=  $\frac{100\,000.}{p \log^{0.5}}$ 
```

```
In[6]:= mblog = Simplify[(q / const) ^ (1 / elast)]
```

```
Out[6]=  $\frac{1. \times 10^{10}}{q^2.}$ 
```

```
In[7]:= Plot[mblog, {q, 0, 2 * qbase},  
PlotRange -> {0, 3 * pbase},  
AxesLabel -> {"q", "p"},  
GridLines -> {{qbase}, {pbase}}  
]
```



Copy Demand Function from above into integral

```
In[8]:=  $\int_{30\,000.}^{50\,000.} \left( \frac{1. * 10}{w^2.} \right) dw$ 
```

```
Out[8]= 133 323.
```

```
In[9]:= TC[w_] := 60 000. + 3. * w - 0.000003 * w ^ 2.;
```

In[10]:= **TC[50 000]**

Out[10]= 202 500 .

In[11]:= **TC[30 000]**

Out[11]= 147 300 .

In[12]:= **TC[50 000] - TC[30 000]**

Out[12]= 55 200 .

In[13]:= **133 333 - 55 200**

Out[13]= 78 133