

Example 1.1 (p.9) The pig problem sensitivity analysis

```
In[1]:= y = (0.65 - 0.01 * x) * (200 + g * x) - 0.45 * x
```

```
Out[2]= -0.45 x + (0.65 - 0.01 x) (200 + g x)
```

```
In[3]:= dydx = D[y, x]
```

```
Out[3]= -0.45 + g (0.65 - 0.01 x) - 0.01 (200 + g x)
```

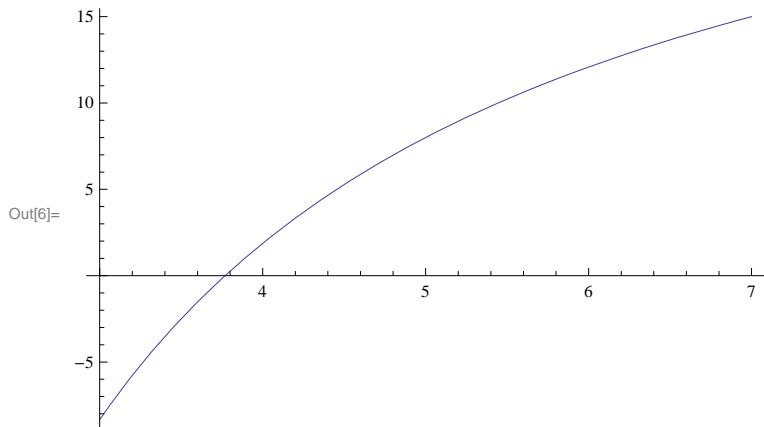
```
In[4]:= s = Solve[dydx == 0, x]
```

```
Out[4]= {x → -50. (2.45 - 0.65 g) / g}
```

```
In[5]:= xopt = x /. s
```

```
Out[5]= {-50. (2.45 - 0.65 g) / g}
```

```
In[6]:= Plot[xopt, {g, 3, 7}]
```



```
In[7]:= x = xopt
```

```
Out[7]= {-50. (2.45 - 0.65 g) / g}
```

```
In[8]:= dxdg = D[x, g]
```

```
Out[8]= {50. (2.45 - 0.65 g) / g^2 + 32.5 / g}
```

```
In[9]:= g = 5
```

```
Out[9]= 5
```

```
In[10]:= Sxg = dxdg * g / x
```

```
Out[10]= {3.0625}
```

```
In[11]:=
```

```
In[12]:=
```

```
In[13]:=
```