Worksheet to support Exercise 3.4.10, modeling a cooling potato.

```
> restart;
  with(plots) :
```

The data, in time/temperature pairs:

```
> data := [[0, 204], [2, 193], [4, 184], [8, 169], [10, 162], [13, 156], [17, 149], [20, 143],
        [24, 138], [30, 130]] :
```

Number of data points is

```
> N := nops(data)
```

However, we will operate on the quantities (t, log(u(t)-A)-log(u(0)-A), with u(0)=204 and A = 72.

```
> logdata := [seq([data[j][1], log(data[j][2] - 72) - log(204 - 72)], j = 1 ..N)]
```

A plot

```
> plt1 := pointplot(logdata, color = red, symbol = solidcircle, symbolsize = 20, labels
        = ["time (minutes)", "Temperature"], labeldirections = [horizontal, vertical]) :
  display(plt1);
```

We seek to fit a line y = -k*t to this

```
> u(t) := -k·t;
```

A least-squares function can be formed as

```
> SS := add((u(logdata[j][1]) - logdata[j][2])^2, j = 1 ..N)
```

Now adjust k to minimize this.

```
>
```