

Distance between Cities

worksheet uuid:2A5D73A8-8DF8-4498-9E6B-F76CF522715E

```
// load the external library that defines – among others – the google function
require('dw.js')

// use it to define a function finding the coordinates of a city, splitting them in an array
coord=function(city){return google("coordinates of "+city).split(",")}

// define a function changing such coordinates in a string to numbers in Radians
toRad=function(l){return eval(l.replace(/(° S)|(° W)/,"*-1").replace(/(° N)|(° E)/,""))/180*Math.PI;}

// enter the distance formula (the Spherical Law of Cosines)
dist=function(a,b){a=coord(a).map(toRad);b=coord(b).map(toRad);return(Math.acos(Math.sin(a[0])*Math.sin(b[0])+
Math.cos(a[0])*Math.cos(b[0])*Math.cos(b[1]-a[1]))*6371).toFixed(2)+" km"}

// this had to be done ONCE; now, use this worksheet... as often as you want
myCity="Neupré"
"Neupré"
dist(myCity,"Liège")
"13.44 km"
dist(myCity,"Paris")
"291.34 km"

北京="Beijing"
"Beijing"
dist("Brussels",北京)
"7961.27 km"
```