

# Rania – PS 7 – 2025-02-11

## EIWL3 Sections 18 and 19

I had repeated issues with timeouts when downloading GeoGraphics. Because of that, I did not re-execute your PS7 notebooks like I usually do (to check for errors upon re-execution). Instead, I just PDF'd them the way that you gave them to me.

### Section 18 Problems

(\*\*18.1 Find the distance from New York to London.\*\*)

```
GeoDistance[New York City CITY ..., ✓, London CITY ..., ✓]
```

(\*\*18.2 Divide the distance from New York to London by the distance from New York to San Francisco.\*\*)

```
GeoDistance[New York City CITY ..., ✓, London CITY ..., ✓]
```

---

```
GeoDistance[New York City CITY ..., ✓, San Francisco CITY ..., ✓]
```

(\*\*18.3 Find the distance from Sydney to Moscow in kilometers.\*\*)

```
UnitConvert[GeoDistance[Sydney CITY, Moscow CITY ..., ✓], km]
```

(\*\*18.4 Generate a map of the United States.\*\*)

```
GeoGraphics[United States COUNTRY ✓]
```

(\*\*18.5 Plot on a map Brazil,Russia,India, and China.\*\*)

```
GeoListPlot[{Brazil COUNTRY ..., ✓, Russia COUNTRY ✓, India COUNTRY ..., ✓, China COUNTRY ..., ✓}]  
(*indicate with {}*)
```

(\*\*18.6 Plot on a map the path from New York City to Beijing.\*\*)

```
GeoGraphics[GeoPath[{New York City CITY ..., ✓, Beijing CITY ..., ✓}]]
```

(\*indicate with {}\*)

(\*\*18.7 Plot a disk centered on the Great Pyramid,with radius 10 miles.\*\*)

```
GeoGraphics[GeoDisk[Great Pyramid of Giza BUILDING, 10 mi]]
```

```

(**18.8 Plot a disk centered on New York with
a radius large enough to just reach San Francisco.**)
GeoGraphics[GeoDisk[New York City CITY ..., ...], GeoDistance[New York City CITY ..., ...], San Francisco CITY ..., ...]]]

(**18.9 Make a satellite image of 0.4 miles around the Pentagon.**)
GeoImage[GeoDisk[The Pentagon BUILDING ..., ...], 0.4 mi]]

(**18.10 Find the nearest 5 countries
to the North Pole (GeoPosition["NorthPole"]).**)
GeoNearest["Country", GeoPosition["NorthPole"], 5]

(**18.11 Find the flags of the 3 countries nearest to latitude 45°,
longitude 0°.**)
EntityValue[Take[GeoNearest["Country", GeoPosition[{45, 0}], 3]], "Flag"]

(**18.12 Plot the 25 volcanoes closest to Rome.**)
GeoListPlot[GeoNearest["Volcano", GeoPosition[Rome CITY]], 25]

(**18.13 Find the difference in latitude between New York and Los Angeles.**)
Part[Part[GeoPosition[New York City CITY]], 1] -
Part[GeoPosition[Los Angeles CITY ..., ...]], 1], 1]
(*There must be a simpler way but the latitude is not
a key and I didn't know what method he wanted me to do*)

```

Out[ ]= 3453.71 mi

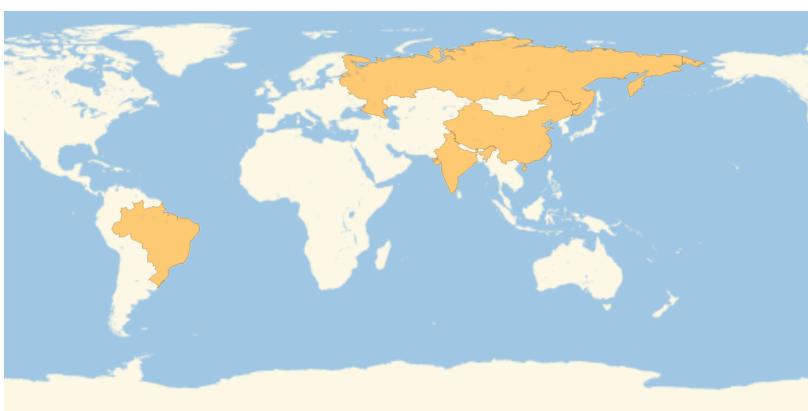
Out[ ]= 1.35109

Out[ ]= 14 387. km

Out[ ]=



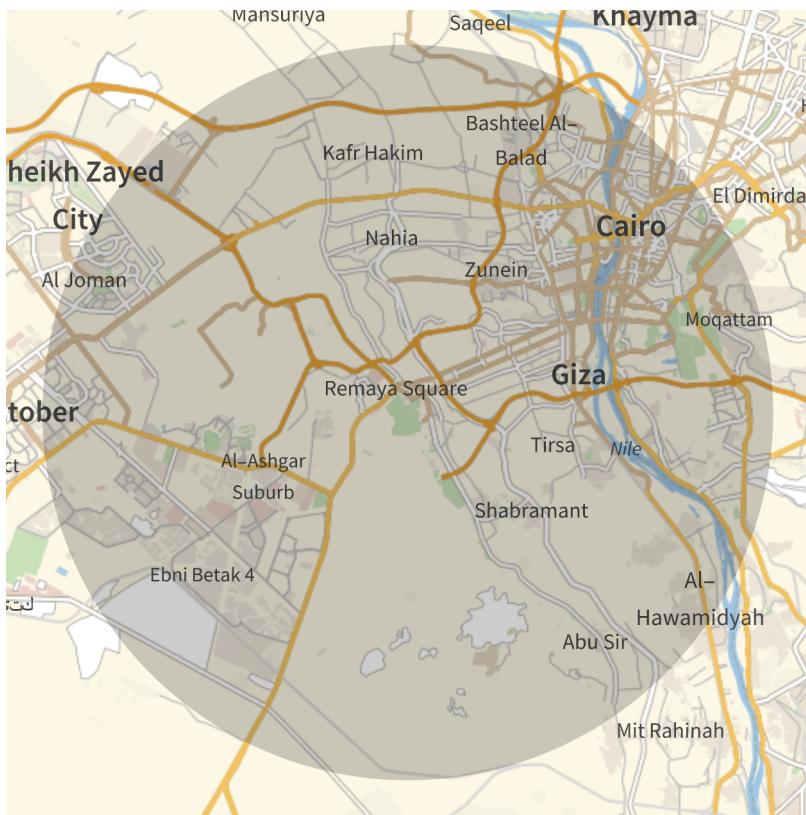
Out[ ]=



Out[ ]=



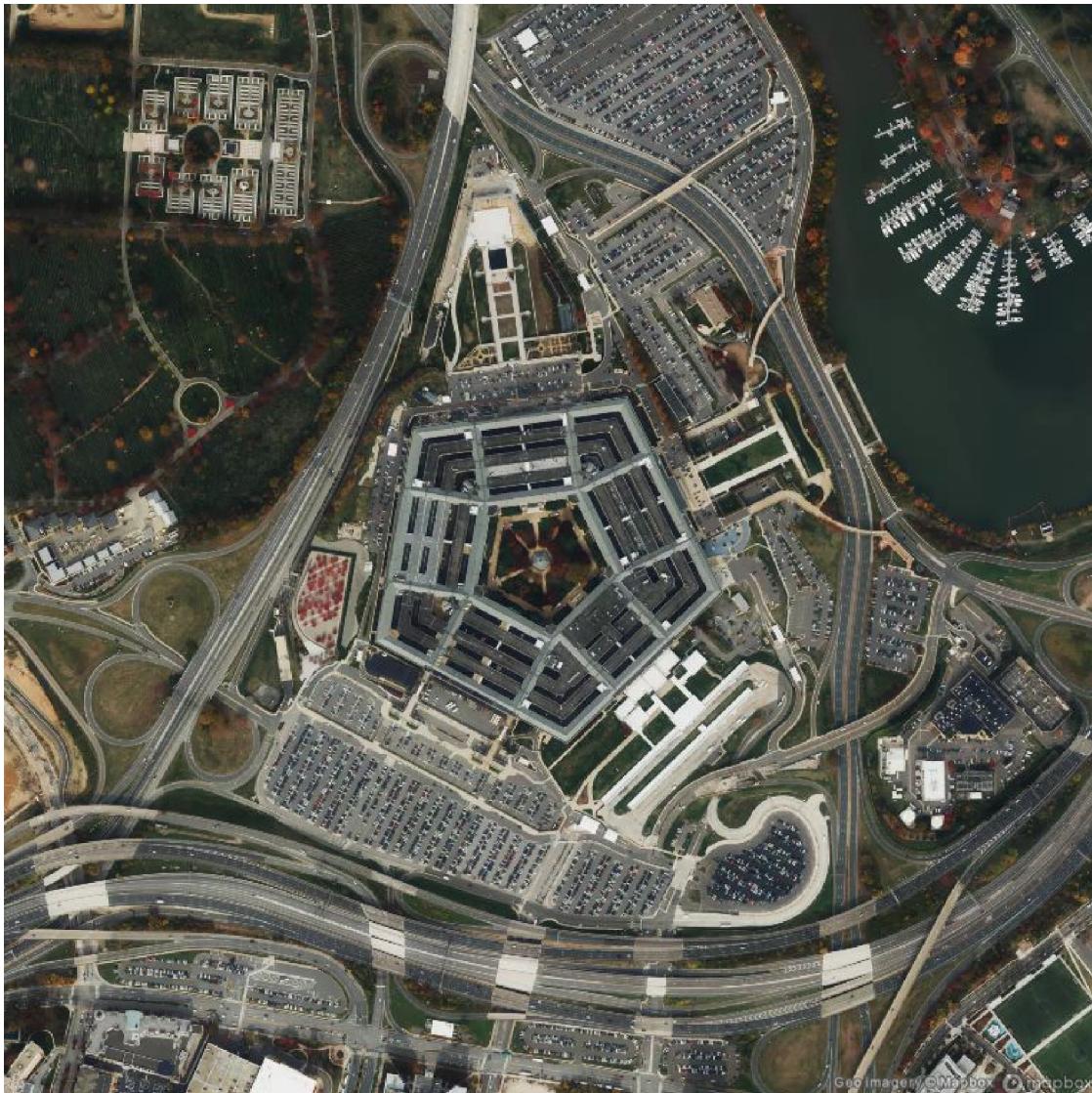
Out[ ]=



Out[ ]=



Out[•]=



Out[•]=

{Greenland, Canada, Russia, Svalbard, United States}

Out[•]=



Out[ ]=



Out[ ]=

6.64488

## Section 19 Problems

In[ ]:= (\*\*19.1 Compute how many days have elapsed since January 1,1900.\*\*)

Now -

(\*\*19.2 Compute what day of the week January 1,2000 was.\*\*)

DayName[

(\*\*19.3 Find the date a hundred thousand days ago.\*\*)

Now -

(\*\*19.4 Find the local time in Delhi.\*\*)

LocalTime[

(\*\*19.5 Find the length of daylight today by subtracting today's sunrise from today's sunset.\*\*)

`Sunrise[Today] - Sunset[Today]`

`(**19.6 Generate an icon for the current phase of the moon.**)`  
`MoonPhase[Today, "Icon"]`

`(**19.7 Make a list of the numerical  
phase of the moon for each of the next 10 days.**)`  
`Table[MoonPhase[n], {n, DateRange[Today, Today + 10 days]}]`

`(**19.8 Generate a list of icons for the  
moon phases from tomorrow until 10 days from now.**)`  
`Table[MoonPhase[n, "Icon"], {n, DateRange[Today, Today + 10 days]}]`

`(**19.9 Compute the time today between  
sunrise in London and in New York City.**)`  
`Sunrise[London CITY ..., ✓, Today] - Sunrise[New York City CITY ..., ✓, Today]`

`(**19.10 Find the number of years from the Apollo 11 moon landing until now.**)`  
`UnitConvert[Now - DateObject[Apollo 11 MANNED SPACE MISSION [lunar landing date]], Ⓛ yr ... ✓]`

`(**19.11 Find the air temperature at the Eiffel Tower at noon yesterday.**)`  
`AirTemperatureData[Eiffel Tower BUILDING ..., ✓, Mon 10 Feb 2025 12:00:00 GMT-7]`

`(**19.12 Plot the temperature at the Eiffel Tower over the past week.**)`  
`ListLinePlot[  
AirTemperatureData[Eiffel Tower BUILDING ..., ✓, {DatePlus[Today, - 1 wk] ..., Now}]]`

`(**19.13 Find the difference in air temperatures  
between Los Angeles and New York City now.**)`  
`AirTemperatureData[Los Angeles CITY ..., ✓, Now] -  
AirTemperatureData[New York City CITY ..., ✓, Now]`

`(**19.14 Plot the historical frequency of the word “groovy”.**)`  
`ListLinePlot[WordFrequencyData["groovy", "TimeSeries"]]`

`(**19.15 Find the difference in population of the UK between 2000 and 1900.**)`  
`United Kingdom COUNTRY ..., ✓ [Dated["Population", 2000]] -  
United Kingdom COUNTRY ..., ✓ [Dated["Population", 1900]]`

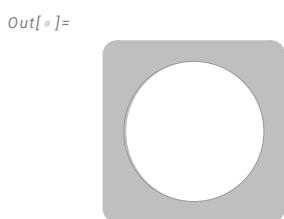
*Out[ ]=*  
45 697. days

*Out[ ]=*  
**Saturday**

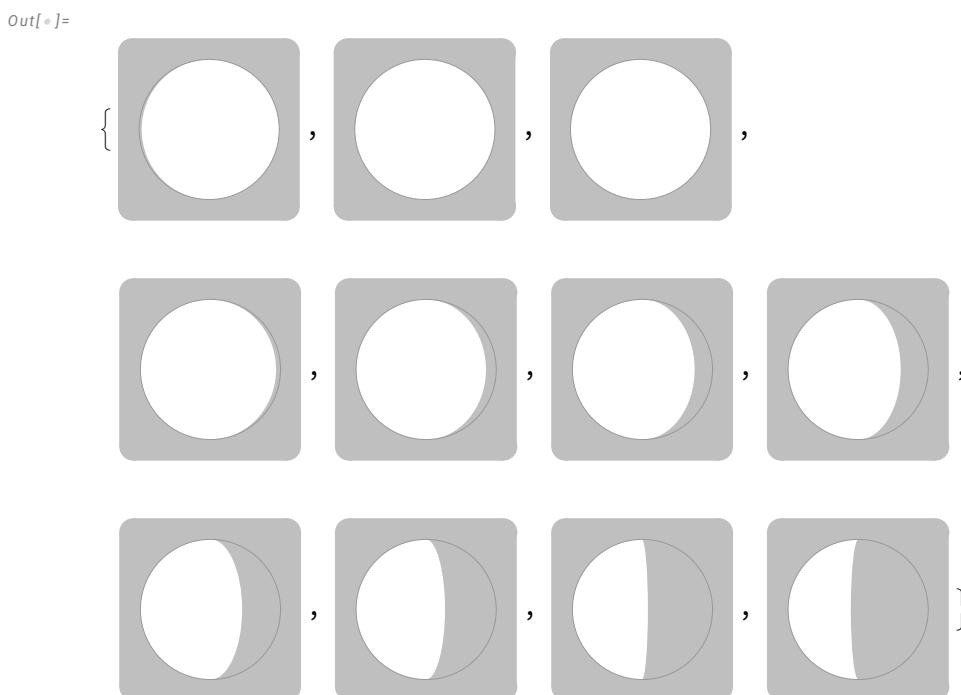
*Out[ ]=*  
Thu 29 Apr 1751 01:24:15 GMT-7

*Out[ ]=*  
Tue 11 Feb 2025 13:54:15 GMT+5.5

*Out[ ]=*  
-10.8076 h



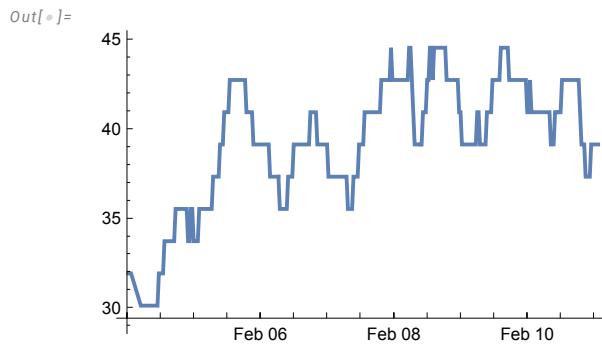
*Out[ ]=*  
{0.981443, 0.998399, 0.994506, 0.971049, 0.929957,  
0.87353, 0.804225, 0.7245, 0.636771, 0.543459, 0.44712}



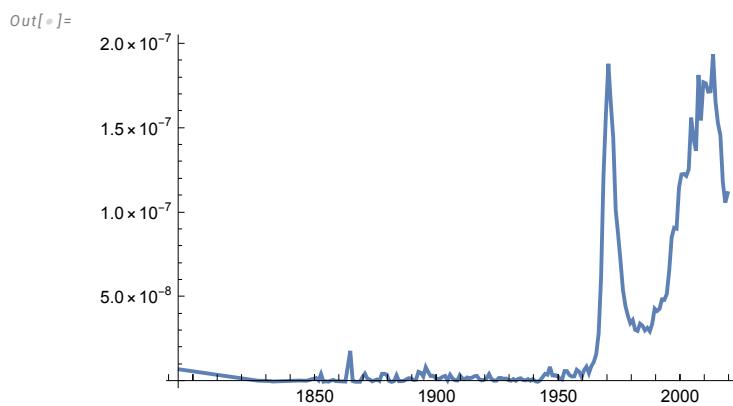
*Out[ ]=*  
-4.54772 h

*Out[ ]=*  
55.6014 yr

*Out[ ]=*  
42.8 °F



Out[ $\circ$ ]=  
23.1  $^{\circ}$  F



Out[ $\circ$ ]=  
20 759 628 people