Looks good, but see the timezone issues on p. 8. ~Brian
8/8

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*)
```

I'm pretty sure Wolfram was expecting you to use EntityValue[]. See p. 6 of my solution.

Out[•]=

3453.71 mi

Out[•]=

1.35109

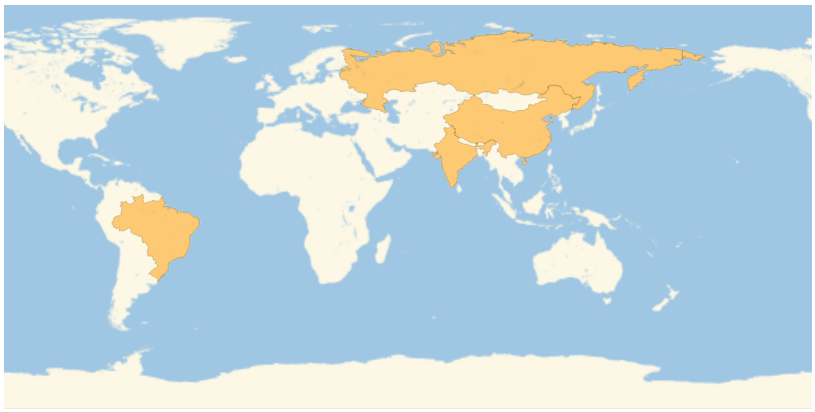
Out[•]=

14 387. km

Out[ ]=


NORTH
AMERICA
United States
Gulf of California

Out[ ]=



Out[ ]=


Baffin Bay
ARCTIC
OCEAN
Chukchi Sea
Sea of Okhotsk
NORTH
AMERICA
Gulf of Alaska

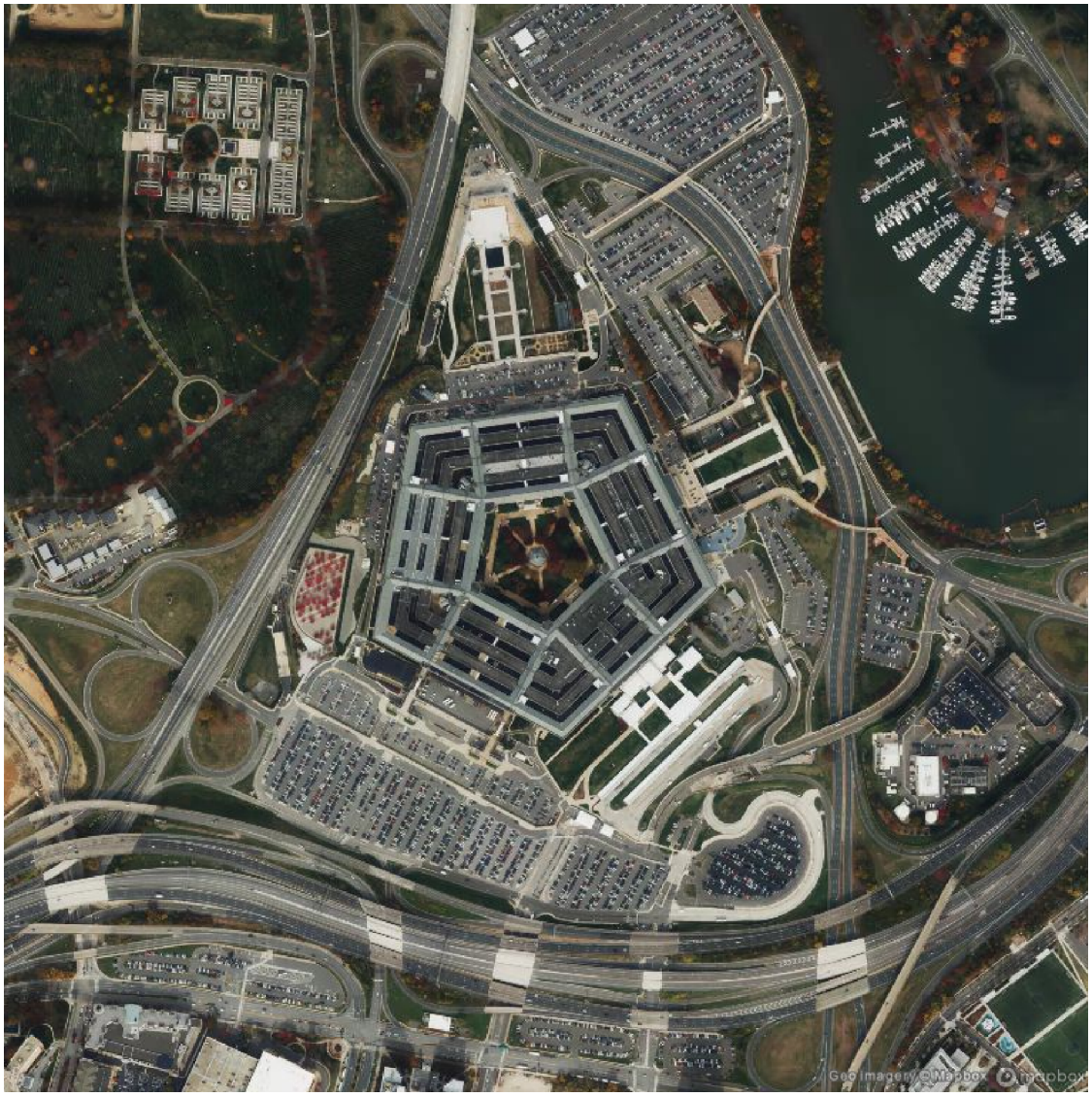
Out[ ]=


Mansuriya
Saqeel
Khayma
Bashteel Al–
Balad
Kafr Hakim
heikh Zayed
City
Al Joman
Nahia
Zunein
Cairo
El Dimirda
Moqattam
Giza
Remaya Square
tober
Tirsa
Nile
Al–Ashgar
Suburb
Shabramant
Ebni Betak 4
Al–
Hawamidyah
Abu Sir
Mit Rahinah

Out[ ]=


Gulf of Alaska
Baffin Bay
Belgium
Spain
NORTH
AMERICA
North Atlantic
Ocean
Mexico
ATLANTIC
OCEAN
PACIFIC
OCEAN
Caribbean Sea
Colombia

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 - Mon 1 Jan 1900

(**19.2 Compute what day of the week January 1,2000 was.**)
DayName[Sat 1 Jan 2000]

(**19.3 Find the date a hundred thousand days ago.**)
Now - 100 000 days

(**19.4 Find the local time in Delhi.**)
LocalTime[Delhi CITY]

(**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[•]=

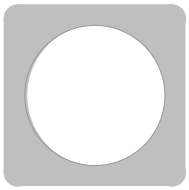
Tue 11 Feb 2025 13:54:15 GMT+5.5

Out[•]=

−10.8076 h

Well, you should subtract sunrise from sunset, not sunset from sunrise, because sunset occurs later (at least the way most people think about sunset).

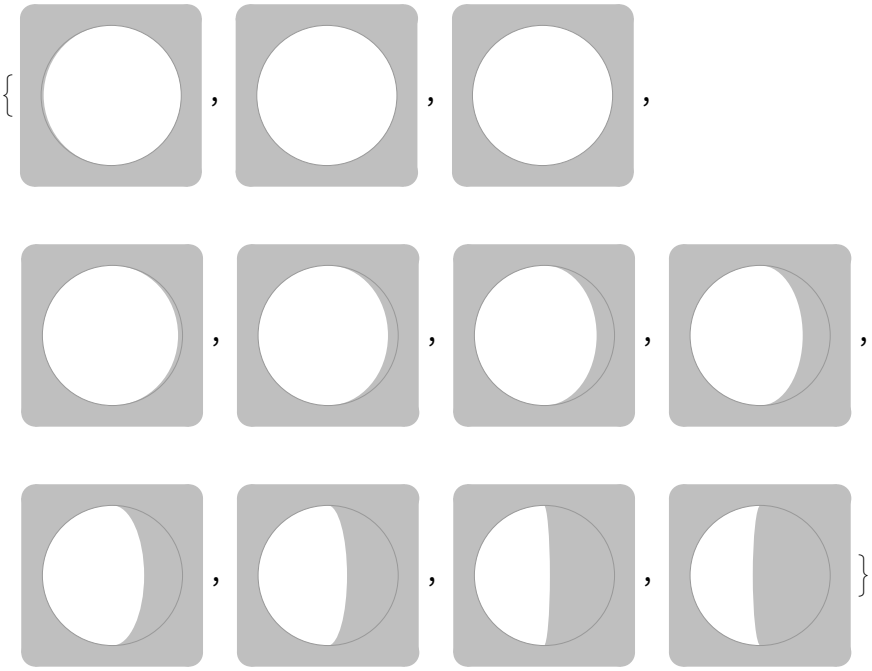
Out[•]=



Out[•]=

{0.981443, 0.998399, 0.994506, 0.971049, 0.929957,
 0.87353, 0.804225, 0.7245, 0.636771, 0.543459, 0.44712}

Out[•]=



Out[•]=

−4.54772 h

The issue is that the wrong day is being used by the software. Of course this number should be positive. But it is coming out negative. See p. 8 of my solution for the explanation.

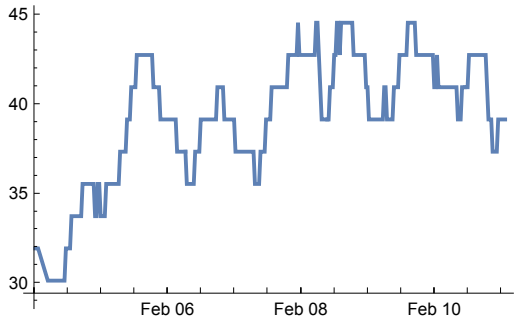
Out[•]=

55.6014 yr

Out[•]=

42.8 °F

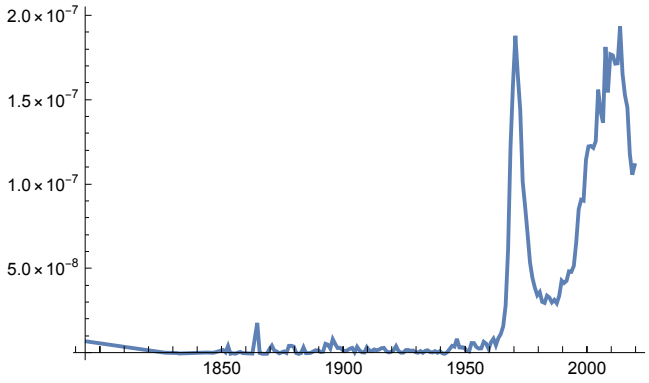
Out[ ]=



Out[ ]=

$23.1\,^{\circ}_{\Delta}\,\mathrm{F}$

Out[ ]=



Out[ ]=

20 759 628 people