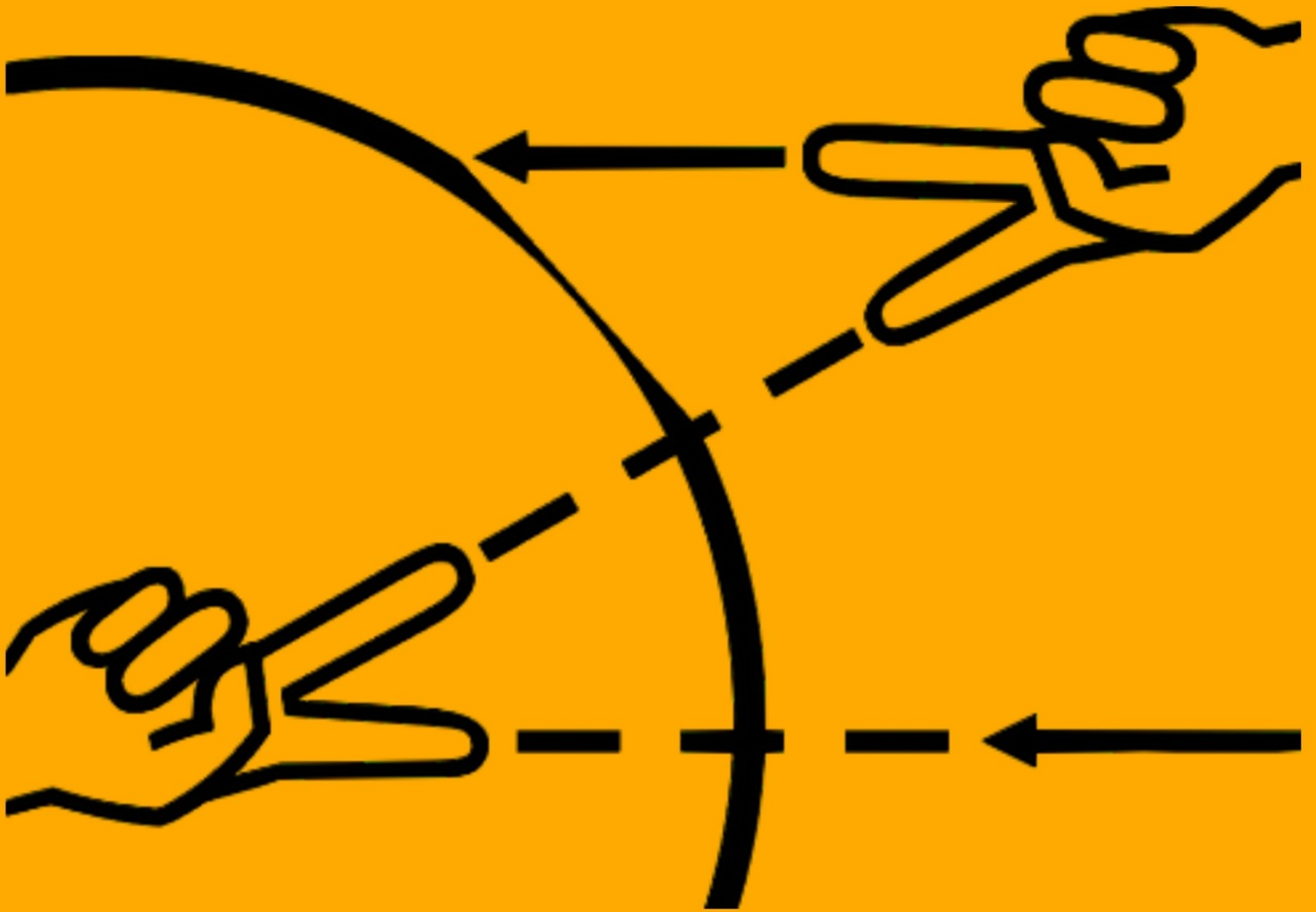


Eratosthenes



4 Continents

15 Countries

31 Schools

185 Measures

4 Continents

15 Countries

31 Schools

185 Measures

ARGENTINA (3)

Alta Gracia, Chivilcoy, Chivilcoy SCBG

BRAZIL (5)

Méier, Rio de Janeiro, Patos de Minas, Pelotas, Santarém

COLOMBIA (3)

Guarne, Cali, Medellin

FRANCE (1)

Lafrançaise

GERMANY (1)

Garmisch Partenkirchen

GREECE (4)

Aigio, Athens, Ilion, Andritsaina

INDIA (1)

Mumbai

ITALY (1)

Merlara

JORDAN (1)

Irbid

MALDIVES (1)

Meeru island

PUERTO RICO (1)

Busteni, Dorohoi, Pogana

ROMANIA (4)

Busteni, Pogana, Dorohoi, Margineni

TUNISIA (1)

Bizerte

TURKEY (1)

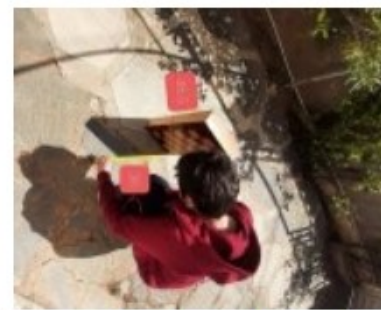
Istanbul


VIETNAM (3)

Biên Hòa, Hồ Chí Minh City NT, Hồ Chí Minh City PN

Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Aigio	Greece	1st High School of Aigio	38.252	22.079
	Alta Gracia	Argentina	Fundación Caminos de Anisacate	-31.659	-64.417
	Andritsaina	Greece	Gymnasio Andritsainas	37.484	21.909
	Athens	Greece	Experimental College Agion Anargyron	38.027	23.726
	Bayamón	Puerto Rico	AECM Carribbean University	18.383	-66.168
	Biên Hòa NQ	Việt Nam	Ngo Quyen High School	10.955	106.826
	Bizerte	Tunisia	Ecole Primaire Raouabi	37.284	9.868
	Busteni	Romania	Colegiul Ion Kalinderu	45.416	25.535
	Cali	Colombia	Grupo Astrofanáticos	3.421	-76.132
	Chivilcoy	Argentina	Parque Cielos del Sur	-34.911	-60.014
	Chivilcoy SCBG	Argentina	Scout Cure Brochero Group	-34.883	-60.017
	Dorohoi	Romania	Grigore Ghica National College	47.953	26.394
	Garmisch Partenkirchen	Germany	St.-Irmengard-Gymnasium	47.493	11.102
	Guarne	Colombia	Grupo Astrofanáticos	6.274	-76.522
	Hồ Chí Minh City NT	Việt Nam	Nguyen Trai High School	10.760	106.712
	Hồ Chí Minh City PNHS	Vietnam	Phú Nhuận High School	10.809	106.676
	Ilion	Greece	11th JuniorHigh School of Ilion	38.033	23.697
	Irbid	Jordan	Mashar'eh Military School	32.405	35.588
	Istanbul	Turkey	Zübeyde Hanım Secondary school	41.005	28.976
	Lafrançaise	France	Collège Antonin Perbosc	44.127	1.237
	Mărgineni	Romania	Gh. Popescu School	44.533	24.554
	Medellín	Colombia	Grupo Astrofánaticos	6.231	-75.591
	Meeru island	Maldives		4.455	73.708
	Méier	Brazil	Escola Municipal Bento Ribeiro	-22.904	-43.280
	Merlara	Italy	Lower Secondary School "Dante Alighieri"	45.166	11.445
	Mumbai	India	Atomic Energy Central School - 6	19.037	72.912
	Patos de Minas	Brazil	Pato de Mines Observatory	-18.580	-46.489
	Pelotas	Brazil	Federal University of Pelotas	-31.772	-52.329
	Pogana	Romania	Scoala Gimnaziala Nr.1 Pogana	46.313	27.575
	Rio de Janeiro	Brazil	Centro Educacional Nosso Mundo	-22.890	-43.317
	Santarém	Brazil	Santarém Adventist College	-2.439	-54.699

Aigio, Greece

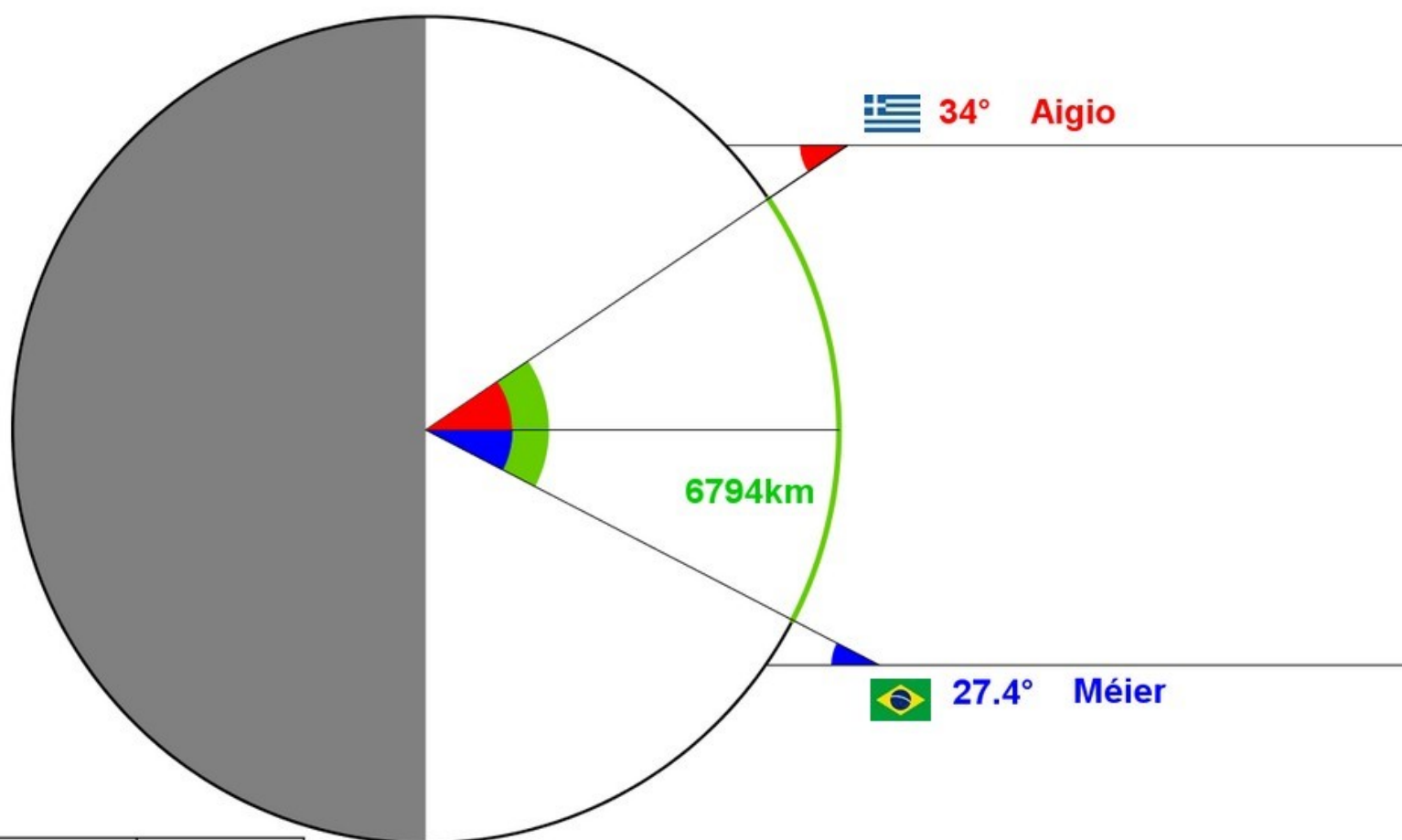


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Aigio	Greece	1st High School of Aigio	38.252	22.079

Date	Gnomon	Shadow	Angle
18 March 2021	46.5cm	36.0cm	37.7°
21 March 2021	17.0cm	13.0cm	37.4°
27 March 2021	40cm	27cm	34°

27/03/2021 (Aigio-Greece) Latitude: 38.252°

27/03/2021 (Méier-Brazil) Latitude: -22.904°



Distance	Angle
circumference	360°
6794km	34° + 27.4°

$$\text{circumference} = \frac{360^\circ \times 6794\text{km}}{34^\circ + 27.4^\circ} = 39835 \text{ km}$$

46.5

36



Alta Gracia, Argentina

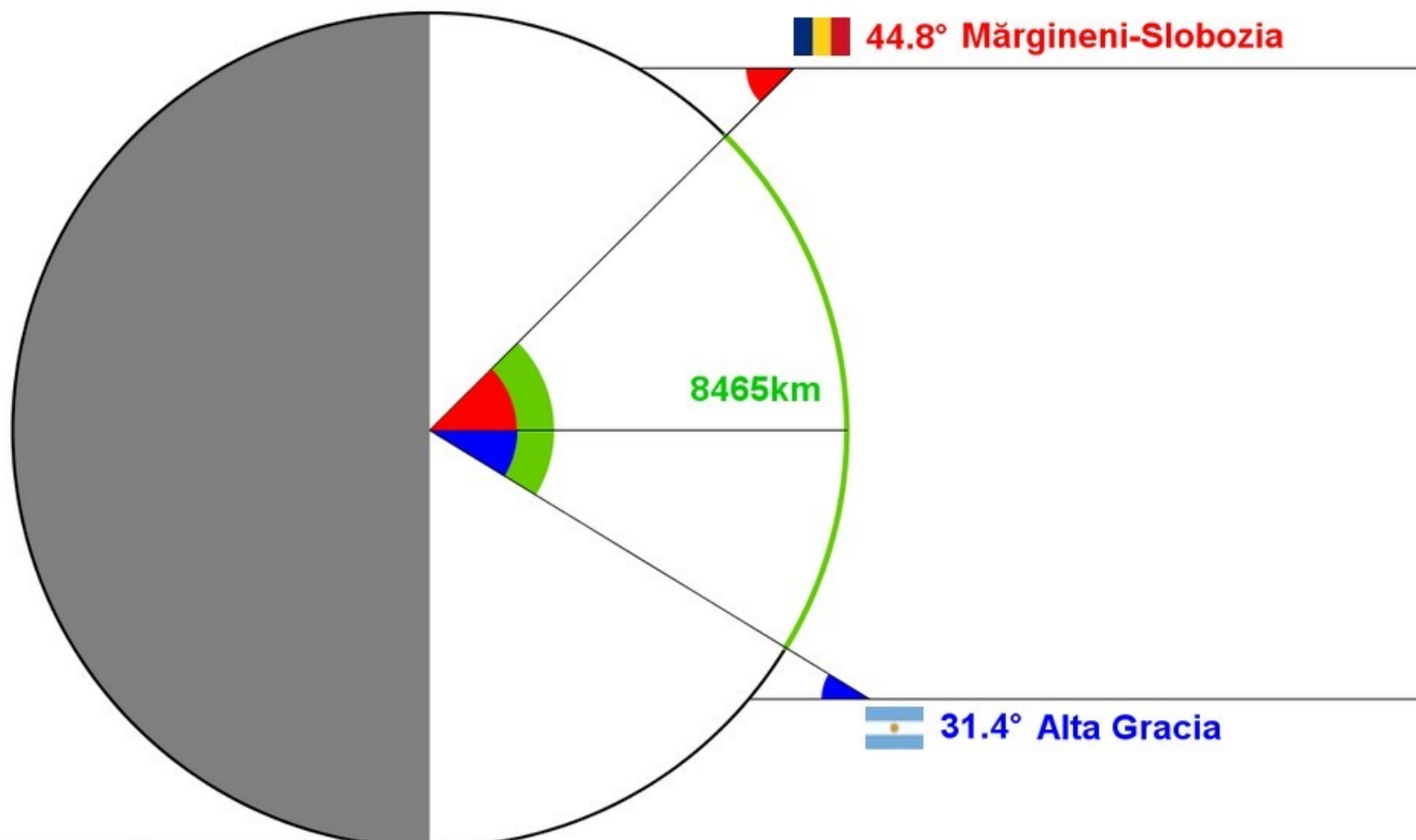


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Alta Gracia	Argentina	Fundación Caminos de Anisacate	-31.659	-64.417

Date	Gnomon	Shadow	Angle
05 March 2021	17.5cm	-8.3cm	-25.4°
10 March 2021	17.5cm	-9.1cm	-27.5°
16 March 2021	17.5cm	-10.0cm	-29.7°
20 March 2021	17.5cm	-10.7cm	-31.4°
21 March 2021	17.5cm	-10.9cm	-31.9°
23 March 2021	17.5cm	-11.1cm	-32.4°
27 March 2021	17.5cm	-11.9cm	-34.2°
28 March 2021	17.5cm	-12.1cm	-34.7°
31 March 2021	17.5cm	-12.6cm	-35.8°

20/03/2021 (Mărgineni-Slobozia-Romania) Latitude: 44.533°

20/03/2021 (Alta Gracia-Argentina) Latitude: -31.656°



Distance	Angle
circumference	360°
8465km	44.8° + 31.4°

$$\text{circumference} = \frac{360^\circ \times 8465\text{km}}{44.8^\circ + 31.4^\circ} = 39992 \text{ km}$$



Andritsaina, Greece

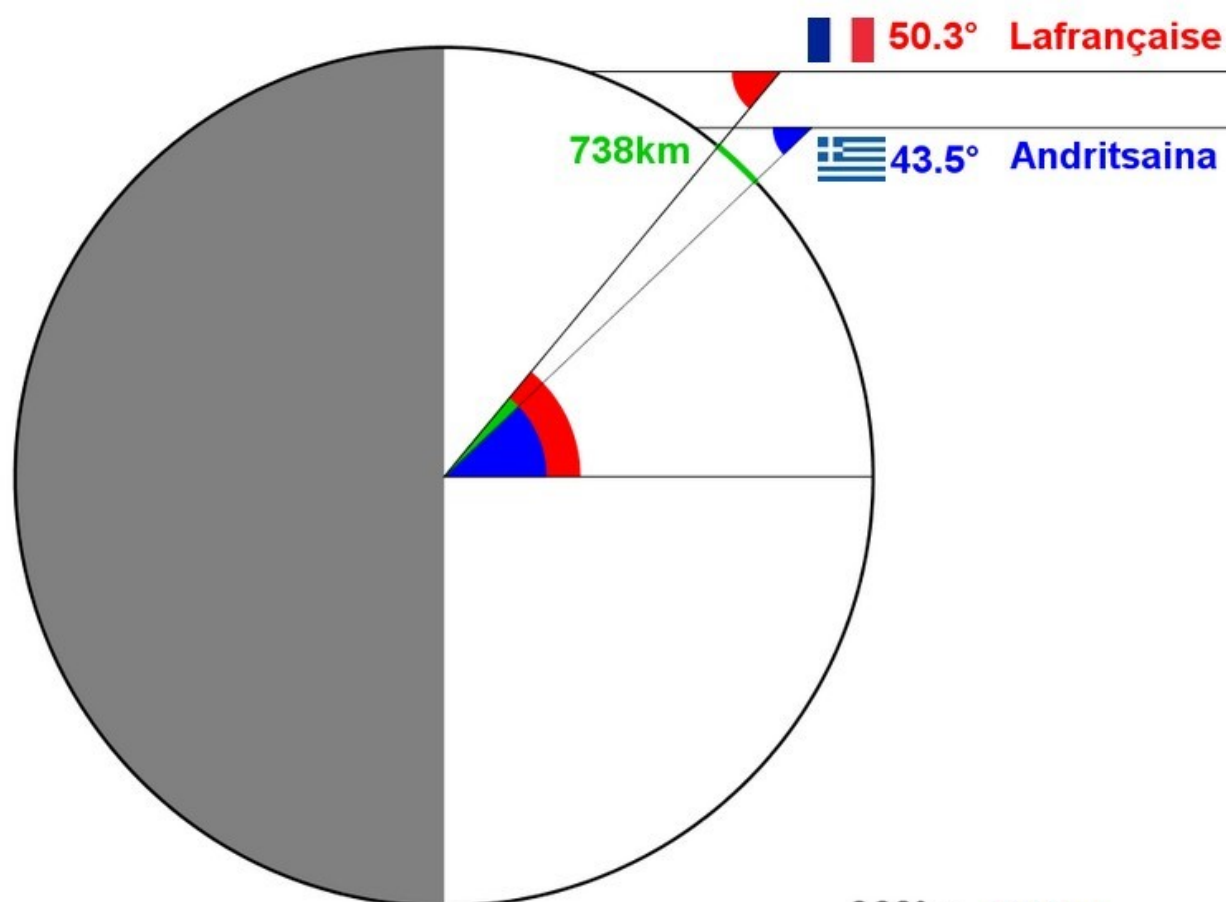


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Andritsaina	Greece	Gymnasio Andritsainas	37.484	21.909

Date	Gnomon	Shadow	Angle
04 March 2021	39.0cm	37.0cm	43.5°

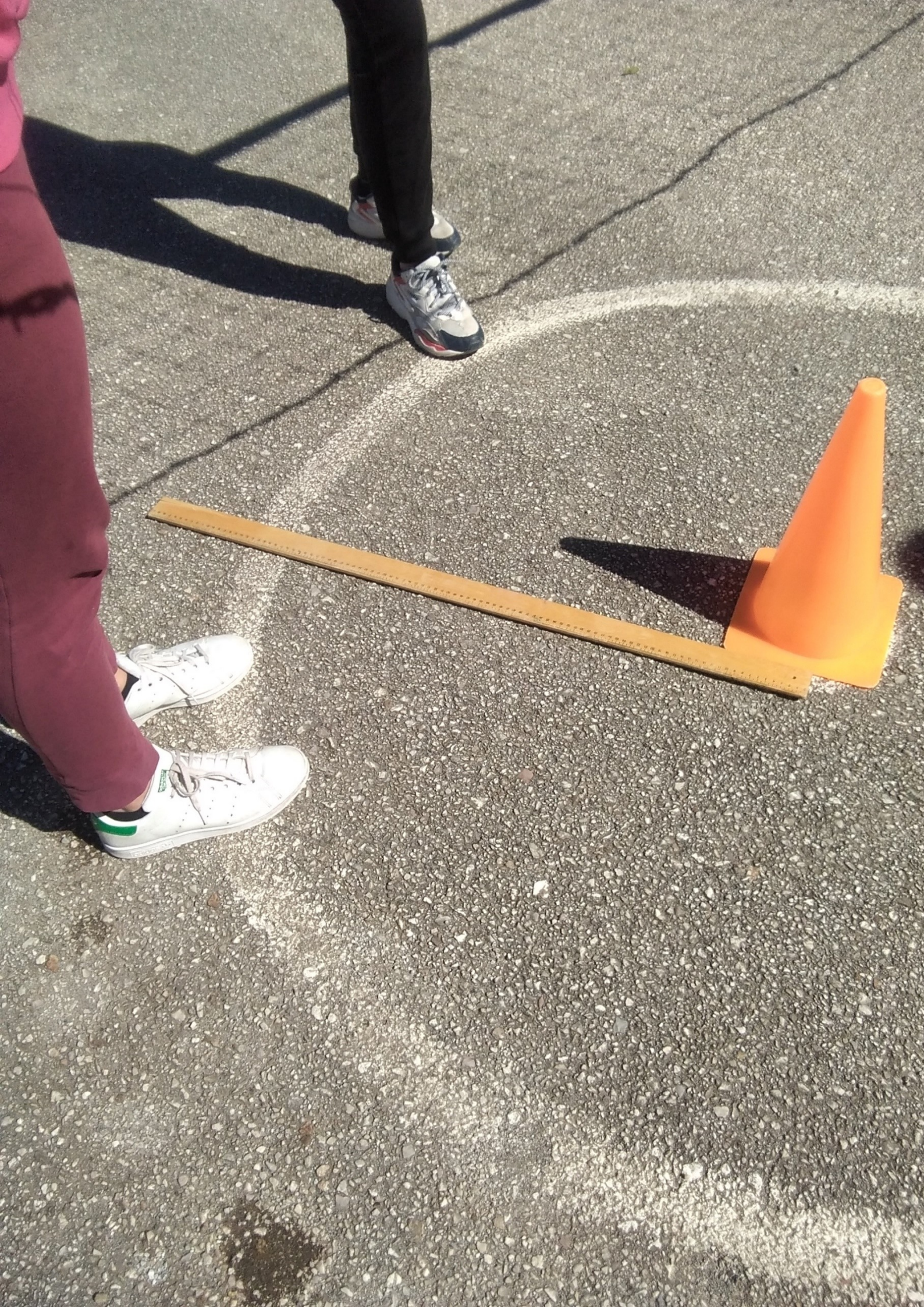
04/03/2021 (Lafrançaise-France) Latitude: 44.127°

04/03/2021 (Andritsaina-Greece) Latitude: 37.484°



Distance	Angle
circumference	360°
738km	50.3° - 43.5°

$$\text{circumference} = \frac{360^\circ \times 738\text{km}}{50.3^\circ - 43.5^\circ} = 39071 \text{ km}$$



Athens, Greece

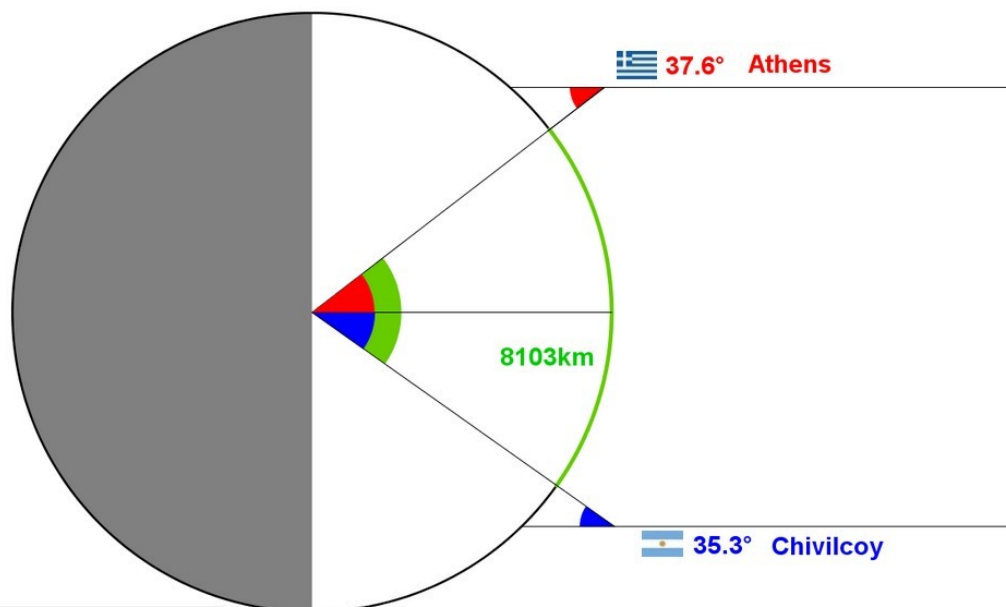


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Athens	Greece	Experimental College Agion Anargyron	38.027	23.726

Date	Gnomon	Shadow	Angle
01 March 2021	28.0cm	30.1cm	47.1°
03 March 2021	14.2cm	15.0cm	46.6°
04 March 2021	24.5cm	24.3cm	44.8°
05 March 2021	18.0cm	17.6cm	44.4°
09 March 2021	17.5cm	16.0cm	42.4°
10 March 2021	12.0cm	10.8cm	42.0°
12 March 2021	23.8cm	20.8cm	41.2°
13 March 2021	22.0cm	19.0cm	40.8°
15 March 2021	28.0cm	25.0cm	41.8°
16 March 2021	17.5cm	14.6cm	39.8°
17 March 2021	27.5cm	22.5cm	39.3°
18 March 2021	28.0cm	23.6cm	40.1°
19 March 2021	28.0cm	23.1cm	39.5°
21 March 2021	23.0cm	17.7cm	37.6°
22 March 2021	19.5cm	14.8cm	37.2°
24 March 2021	19cm	16cm	40.1°
26 March 2021	28cm	21.2cm	37.1°
27 March 2021	20.00cm	13.4cm	33.8°
28 March 2021	23cm	18.5cm	38.8°
29 March 2021	20.5cm	14.2cm	34.7°
30 March 2021	20.2cm	13.6cm	34°

21/03/2021 (Athens-Greece) Latitude: 38.027°

21/03/2021 (Chivilcoy-Argentina) Latitude: -34.911°



Distance	Angle
circumference	360°
8103km	37.6° + 35.3°

$$\text{circumference} = \frac{360^\circ \times 8103\text{km}}{37.6^\circ + 35.3^\circ} = 40015 \text{ km}$$

maria Th.
9-3-21
gnomon
19.5 cm
shadow
18.5 cm



Dimitris G
9/3/2021
Gnomon:25
Shadow:26,1



michalis 9/3/21
gnomon
shadow 17



Dimitris D.
9/3/2021

Petros A.
(17/3/2021 12:33 p.m.)
Gnomon : 27.5 cm
Shadow : 22.5 cm
 $Tan\omega = 22.5/27.5$
 $Tan^{-1} = 0.8182 \approx 39^\circ$

Σπύρος Π.
29-3-2021
Gnomon:28cm
Shadow:20,3cm
Angle:35,94°



Άγγελος Κουκάς
9-3-21
gnomon: 17,5
shadow: 16



09/03/2021
Hight : 8cm
Shadow : 8cm



Petros A. (9/3/2021)
Gnomon : 12,5 cm
Shadow : 13 cm
 $Tan\omega = 13/12.5$
 $Tan^{-1} = 1.04 \approx 46^\circ$



Σπύρος Π.
9/3/2021
Height: 28cm
Shadow: 27cm
 $\omega = 43.9^\circ$



Μάρω Βελλιανίτη
29-3-2021
Gnomon: 20,5cm
Shadow: 14,2cm



Γιώργος Βρατσίνης
28-3-2021
Gnomon: 23cm
Shadow: 18,5cm



Olga 17/03/21 (12:33)
Gnomon:12
Shadow:9,6
 $Tan=9,6\div 12=0,8$
 $Tan=39^\circ$ (περιπου)



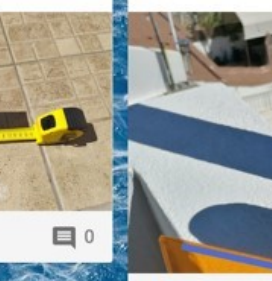
Maria
17-3-21
gnomon 20.5 cm
Shadow 17 cm



sofilia
17-3-21
gnomon 15.5 cm
Shadow 12 cm



Michalis
17-3-21
gnomon 17 cm
Shadow 14 cm



29-3-2021 Chris D.
Gnomon: 19.5 cm
Shadow: 14 cm



Σπύρος Π.
1-3-2021
Height:28 cm
Shadow: 30,1 cm
 $30,1/28 = 1,075$
 $\omega = 47,07$ μοίρες



Σπύρος Π.
1-3-2021
Height:28 cm
Shadow: 30,1 cm
 $30,1/28 = 1,075$
 $\omega = 47,07$ μοίρες



Bayamón, Puerto Rico

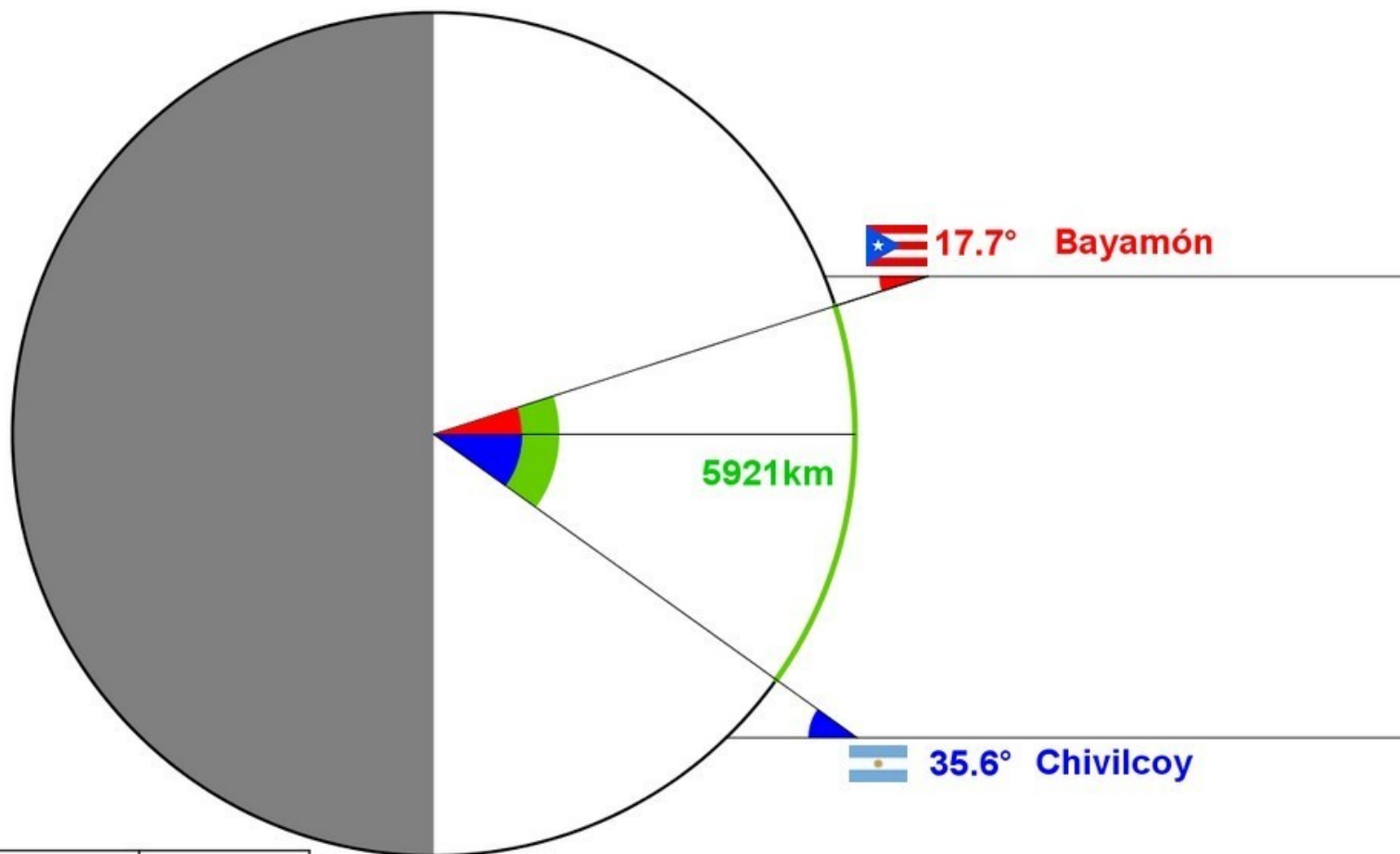


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Bayamón	Puerto Rico	AECM Carribean University	18.383	-66.168

Date	Gnomon	Shadow	Angle
21 March 2021	25cm	8.5cm	18.8°
22 March 2021	25cm	8cm	17.7°
23 March 2021	25cm	6cm	13.5°
24 March 2021	25.0cm	7.5cm	16.7°
25 March 2021	25cm	8.3cm	18.4°
26 March 2021	25cm	8.5cm	18.8°
29 March 2021	25cm	9cm	19.8°

22/03/2021 (Bayamón-Puerto Rico) Latitude: 18.383°

22/03/2021 (Chivilcoy-Argentina) Latitude: -34.911°



Distance	Angle
circumference	360°
5921km	17.7° + 35.6°

$$\text{circumference} = \frac{360^\circ \times 5921\text{km}}{17.7^\circ + 35.6^\circ} = 39992 \text{ km}$$



Biên Hòa, Việt Nam

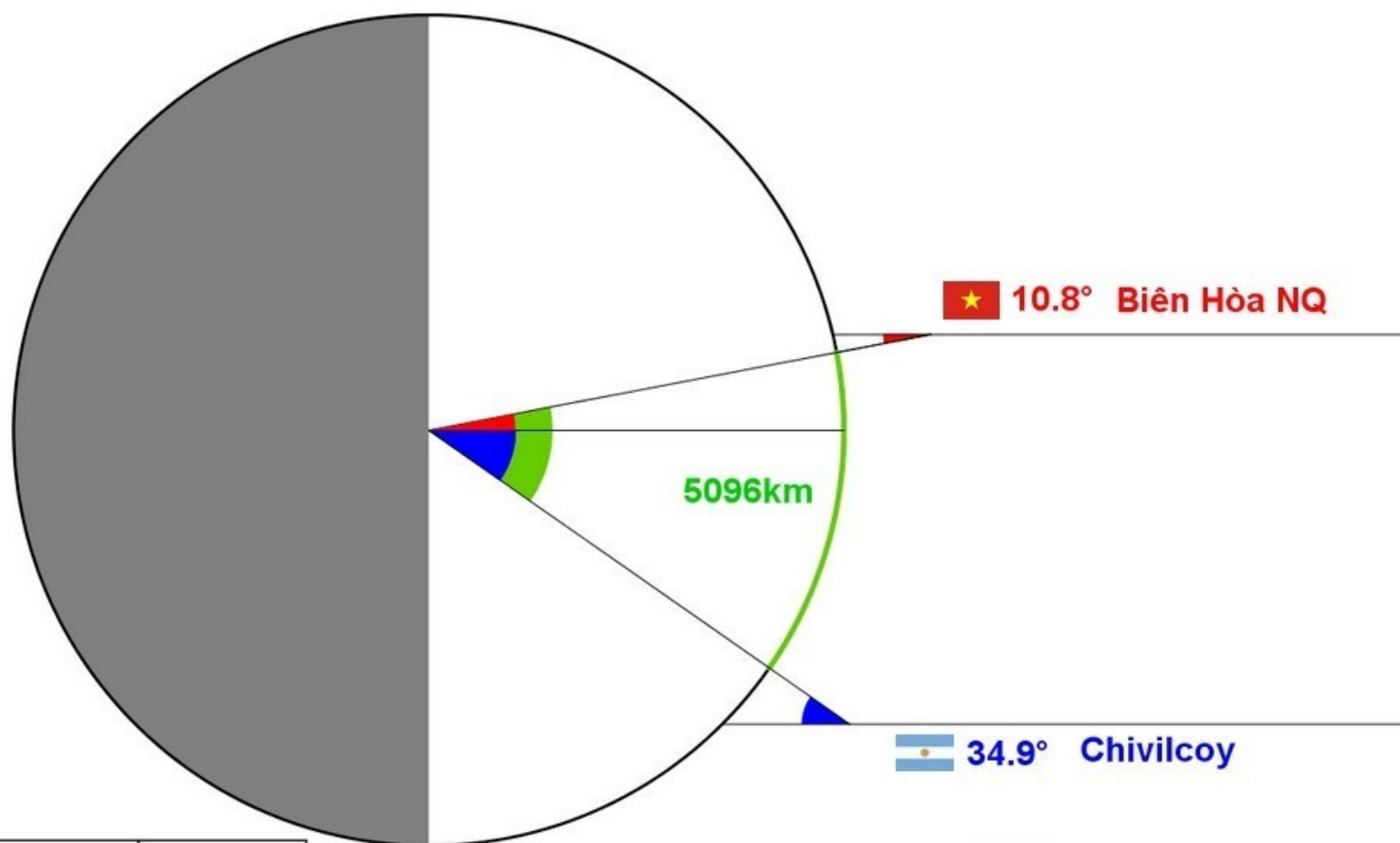


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Biên Hòa NQ	Việt Nam	Ngo Quyen High School	10.955	106.826

Date	Gnomon	Shadow	Angle
19 March 2021	50cm	9.5cm	10.8°

19/03/2021 (Biên Hòa NQ-Vietnam) Latitude: 10.955°

19/03/2021 (Chivilcoy-Argentina) Latitude: -34.911°



Distance	Angle
circumference	360°
5096km	10.8° + 34.9°

$$\text{circumference} = \frac{360^\circ \times 5096\text{km}}{10.8^\circ + 34.9^\circ} = 40144 \text{ km}$$



Bizerte, Tunisia

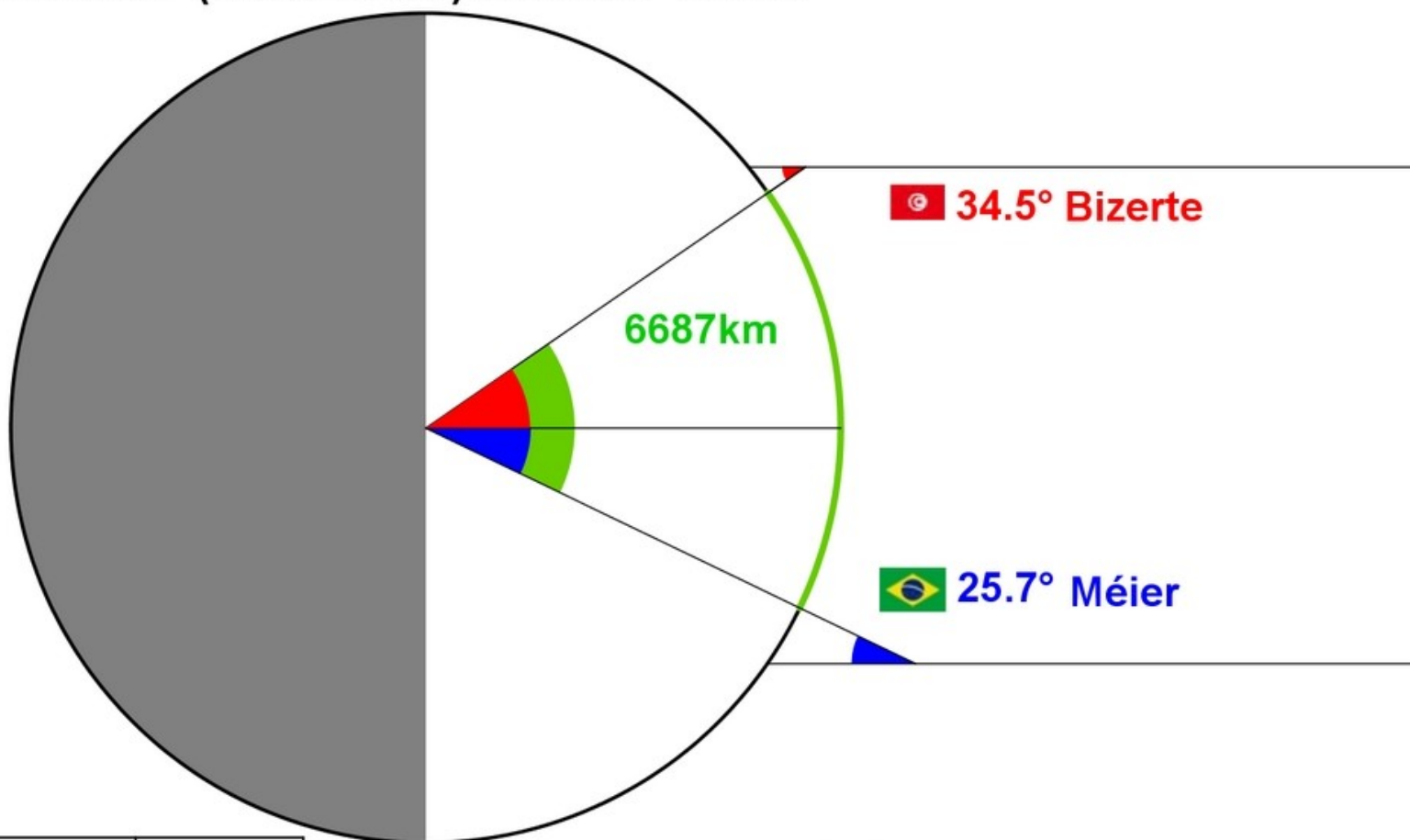


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Bizerte	Tunisia	Ecole Primaire Raouabi	37.284	9.868

Date	Gnomon	Shadow	Angle
26 March 2021	23.0cm	15.8cm	34.5°
28 March 2021	15.5cm	10cm	32.8°
29 March 2021	17cm	11cm	32.9°
30 March 2021	15.5cm	10cm	32.8°
31 March 2021	32.5cm	21cm	32.9°

26/03/2021 (Bizerte-Tunisia) Latitude: 37.284°

26/03/2021 (Méier-Brazil) Latitude: -22.904°



 34.5° Bizerte

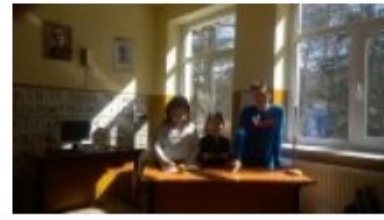
 25.7° Méier


$$\text{circumference} = \frac{360^\circ \times 6687\text{km}}{34.5^\circ + 25.7^\circ} = 39989 \text{ km}$$

Distance	Angle
circumference	360°
6687km	34.5° + 25.7°



Busteni, Romania

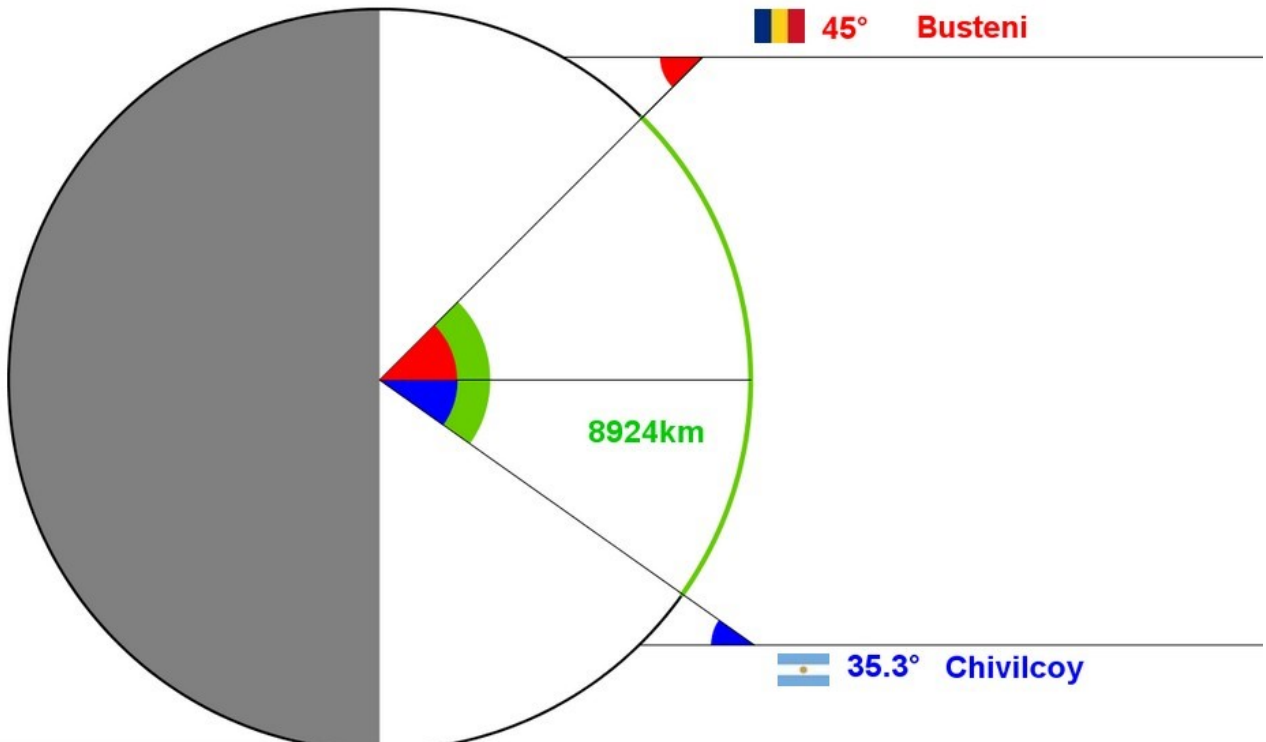


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Busteni	Romania	Colegiul Ion Kalinderu	45.416	25.535

Date	Gnomon	Shadow	Angle
08 March 2020	30.0cm	36.0cm	50.2°
02 March 2021	92.0cm	120.0cm	52.5°
04 March 2021	78.8cm	100.0cm	51.8°
05 March 2021	27.2cm	34.0cm	51.3°
09 March 2021	30cm	35.5cm	49.8°
10 March 2021	30.0cm	35.0cm	49.4°
12 March 2021	63.0cm	71.4cm	48.6°
13 March 2021	71.5cm	80.0cm	48.2°
18 March 2021	13.5cm	14.0cm	46.0°
20 March 2021	63.2cm	64cm	45.4°
21 March 2021	40.0cm	40.0cm	45.0°
23 March 2021	50.0cm	48.5cm	44.1°
26 March 2021	50cm	46.5cm	42.9°
27 March 2021	65.40cm	60cm	42.5°
29 March 2021	50cm	44.7cm	41.8°
30 March 2021	50cm	44cm	41.3°
31 March 2021	50cm	43.4cm	41°

21/03/2021 (Busteni-Romania) Latitude: 45.416°

21/03/2021 (Chivilcoy-Argentina) Latitude: -34.911°




Distance	Angle
circumference	360°
8924km	45° + 35.3°

circumference = $\frac{360^\circ \times 8924\text{km}}{45^\circ + 35.3^\circ} = 40008 \text{ km}$



Cali, Colombia

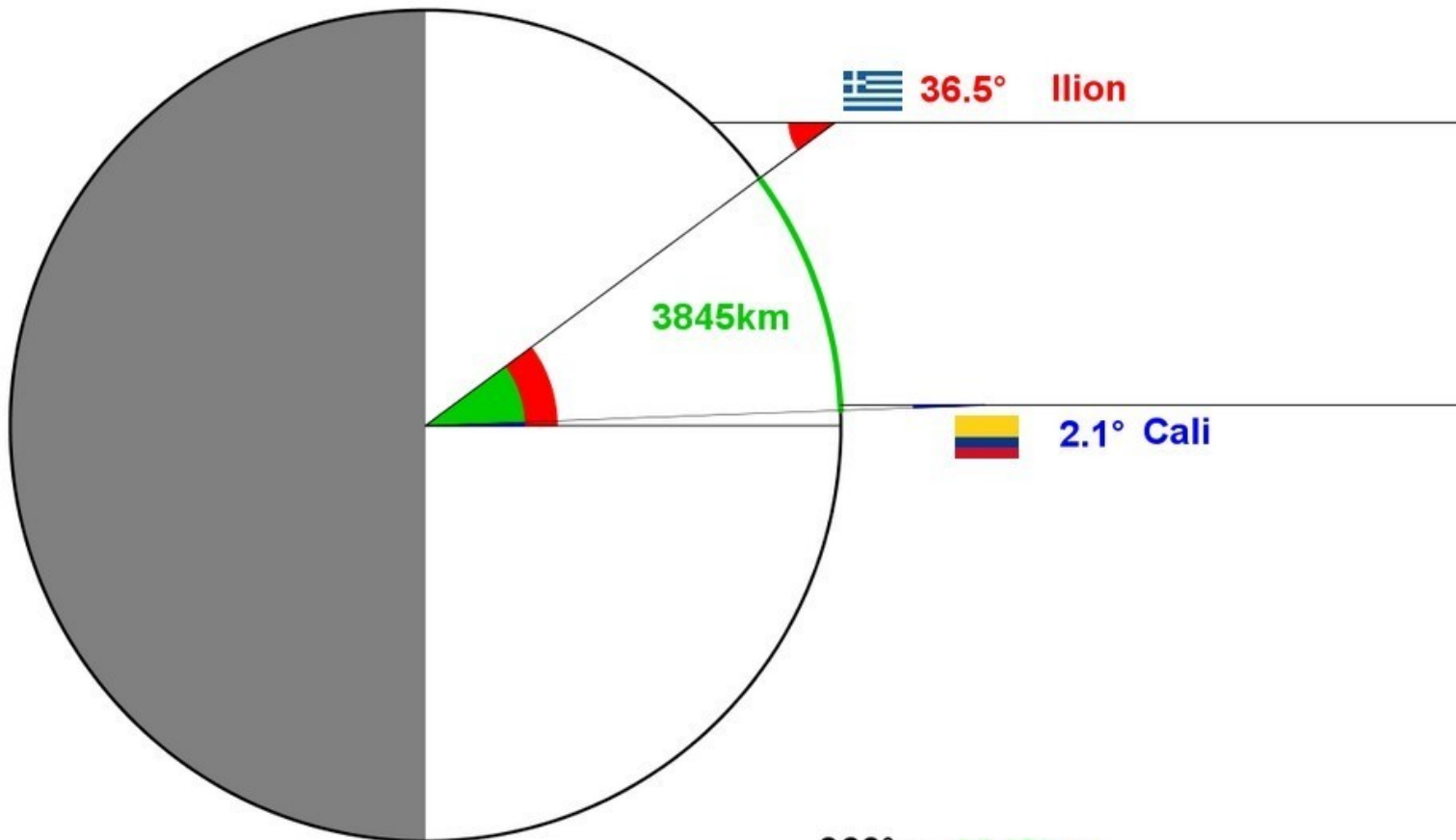


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Cali	Colombia	Grupo Astrofanáticos	3.421	-76.132

Date	Gnomon	Shadow	Angle
19 March 2021	27.0cm	1.0cm	2.1°

19/03/2021 (Ilion-Greece) Latitude: 38.033°

19/03/2021 (Cali-Colombia) Latitude: 3.421°

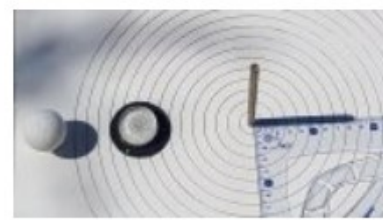



Distance	Angle
circumference	360°
3845km	36.5° - 2.1°

$$\text{circumference} = \frac{360^\circ \times 3845\text{km}}{36.5^\circ - 2.1^\circ} = 40238 \text{ km}$$



Chivilcoy, Argentina

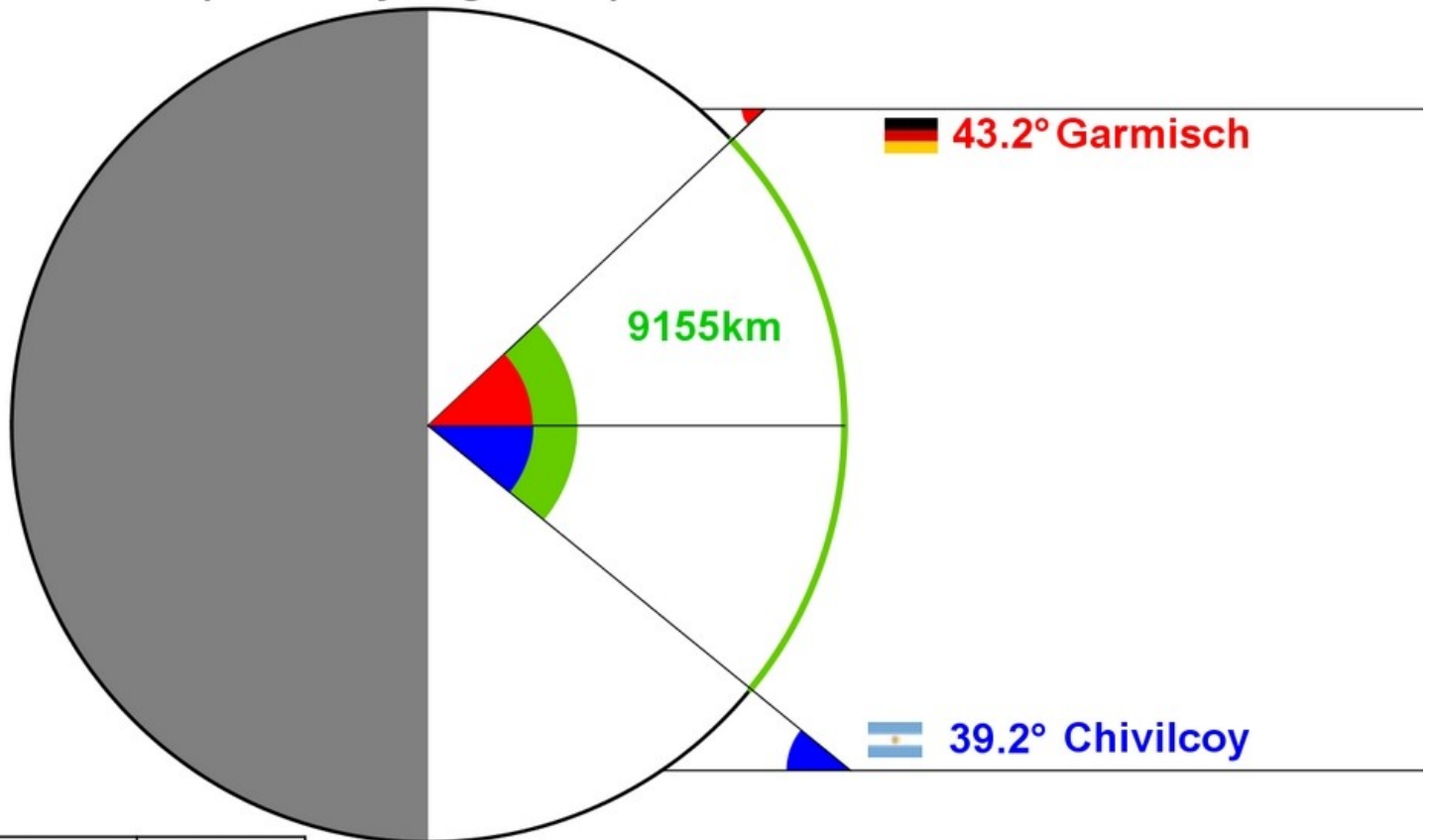


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Chivilcoy	Argentina	Parque Cielos del Sur	-34.911	-60.014

Date	Gnomon	Shadow	Angle
08 March 2020	51.5cm	-30.1cm	-30.3°
02 March 2021	43.6cm	-23.2cm	-28.0°
05 March 2021	41.0cm	-23.2cm	-29.5°
06 March 2021	18.0cm	-10.2cm	-29.5°
07 March 2021	17.9cm	-10.3cm	-29.9°
10 March 2020	54.7cm	-33.0cm	-36.4°
12 March 2020	40.8cm	-25.3cm	-31.8°
19 March 2021	39.4cm	-27.5cm	-34.9°
21 March 2021	12cm	-8.5cm	-35.3°
22 March 2021	12cm	-8.6cm	-35.6°
23 March 2021	12cm	-8.8cm	-36.3°
29 March 2021	12cm	-9.5cm	-38.4°
30 March 2021	12cm	-9.7cm	-38.9°
31 March 2021	12cm	-9.8cm	-39.2°

31/03/2021 (Garmisch-Germany) Latitude: 47.493°

31/03/2021 (Chivilcoy-Argentina) Latitude: -34.911°



Distance	Angle
circumference	360°
9155km	43.2°+39.2°

$$\text{circumference} = \frac{360^\circ \times 9155\text{km}}{43.2^\circ + 39.2^\circ} = 39998 \text{ km}$$



Chivilcoy SCBG, Argentina

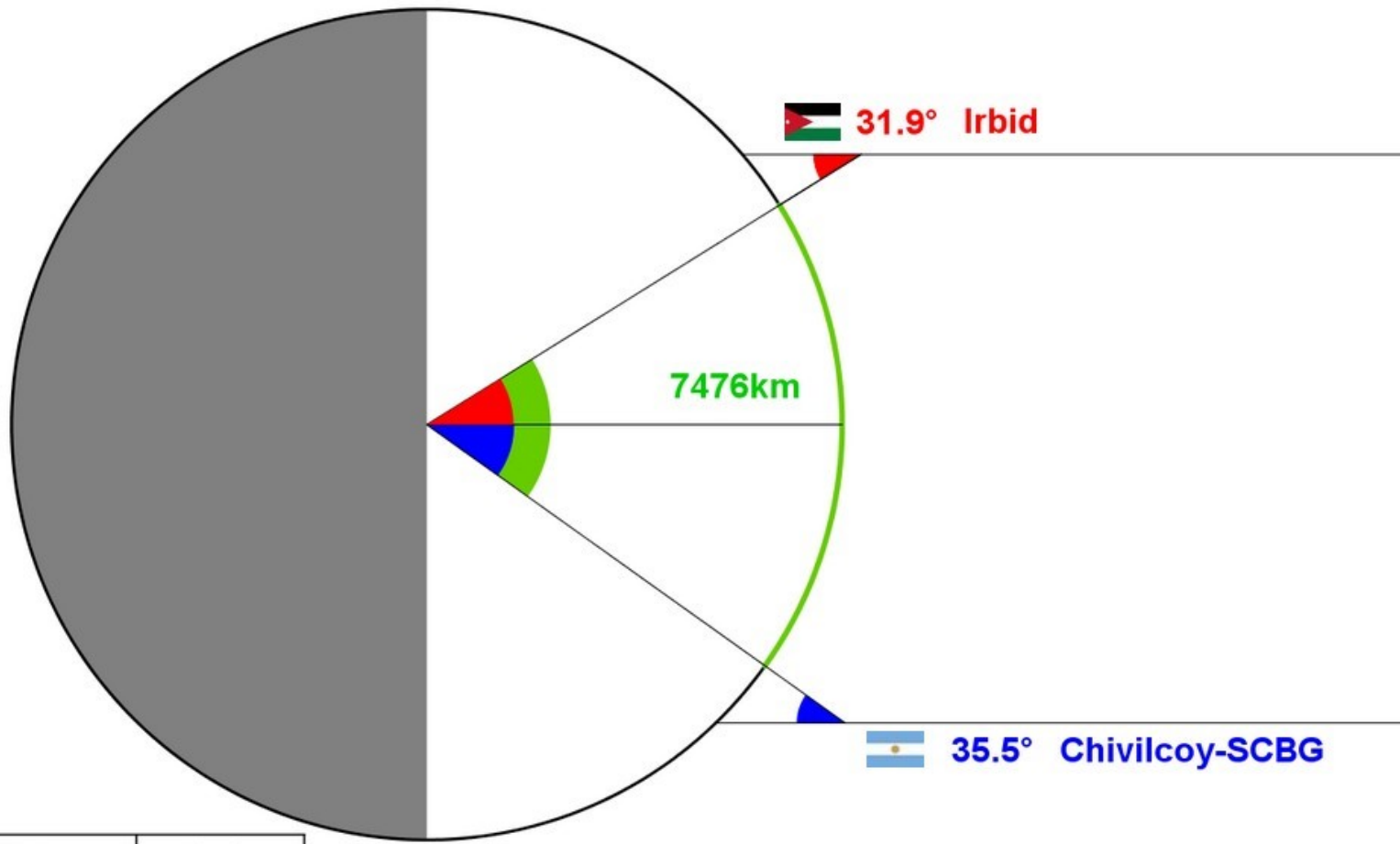


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Chivilcoy SCBG	Argentina	Scout Cure Brochero Group	-34.883	-60.017

Date	Gnomon	Shadow	Angle
21 March 2021	66cm	-47cm	-35.5°

21/03/2021 (Irbid-Jordan) Latitude: 32.405°

21/03/2021 (Chivilcoy-SCBG-Argentina) Latitude: -34.883°



Distance	Angle
circumference	360°
7476km	31.9° + 35.5°

circumference = $\frac{360^\circ \times 7476\text{km}}{31.9^\circ + 35.5^\circ} = 39931 \text{ km}$



Dorohoi, Romania

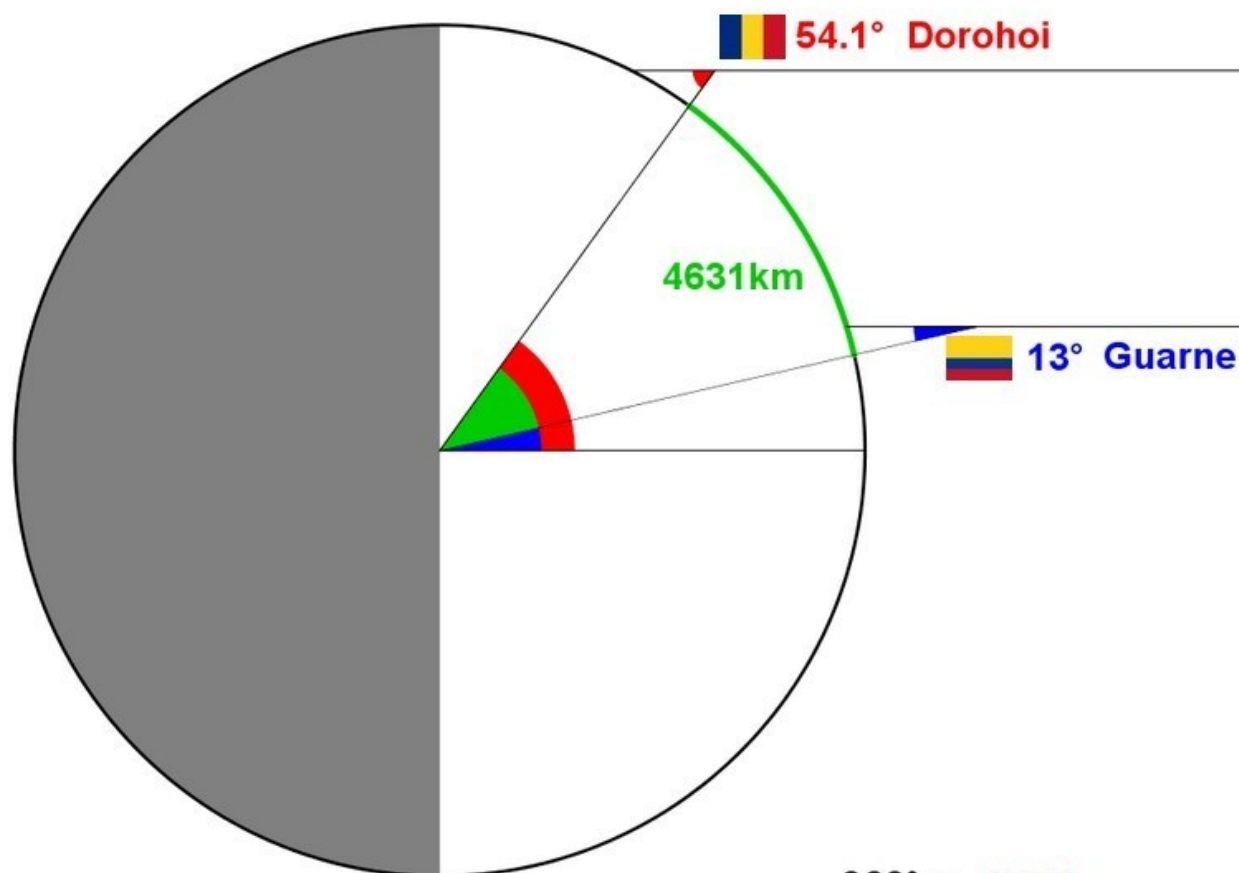


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Dorohoi	Romania	Grigore Ghica National College	47.953	26.394

Date	Gnomon	Shadow	Angle
02 March 2021	30.0cm	40.0cm	53.1°
03 March 2021	14.5cm	20.0cm	54.1°
21 March 2021	13.5cm	14.0cm	46.0°

03/03/2021 (Dorohoi-Romania) Latitude: 47.953°

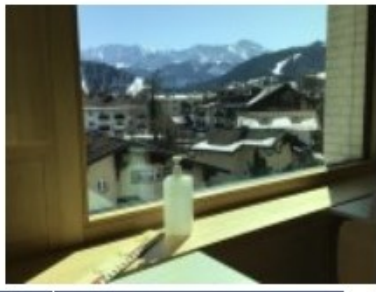
03/03/2021 (Guarne-Colombia) Latitude: 6.274°



Distance	Angle
circumference	360°
4631km	54.1° - 13°

$$\text{circumference} = \frac{360^\circ \times 4631\text{km}}{54.1^\circ - 13^\circ} = 40564 \text{ km}$$

Garmisch Partenkirchen, Germany

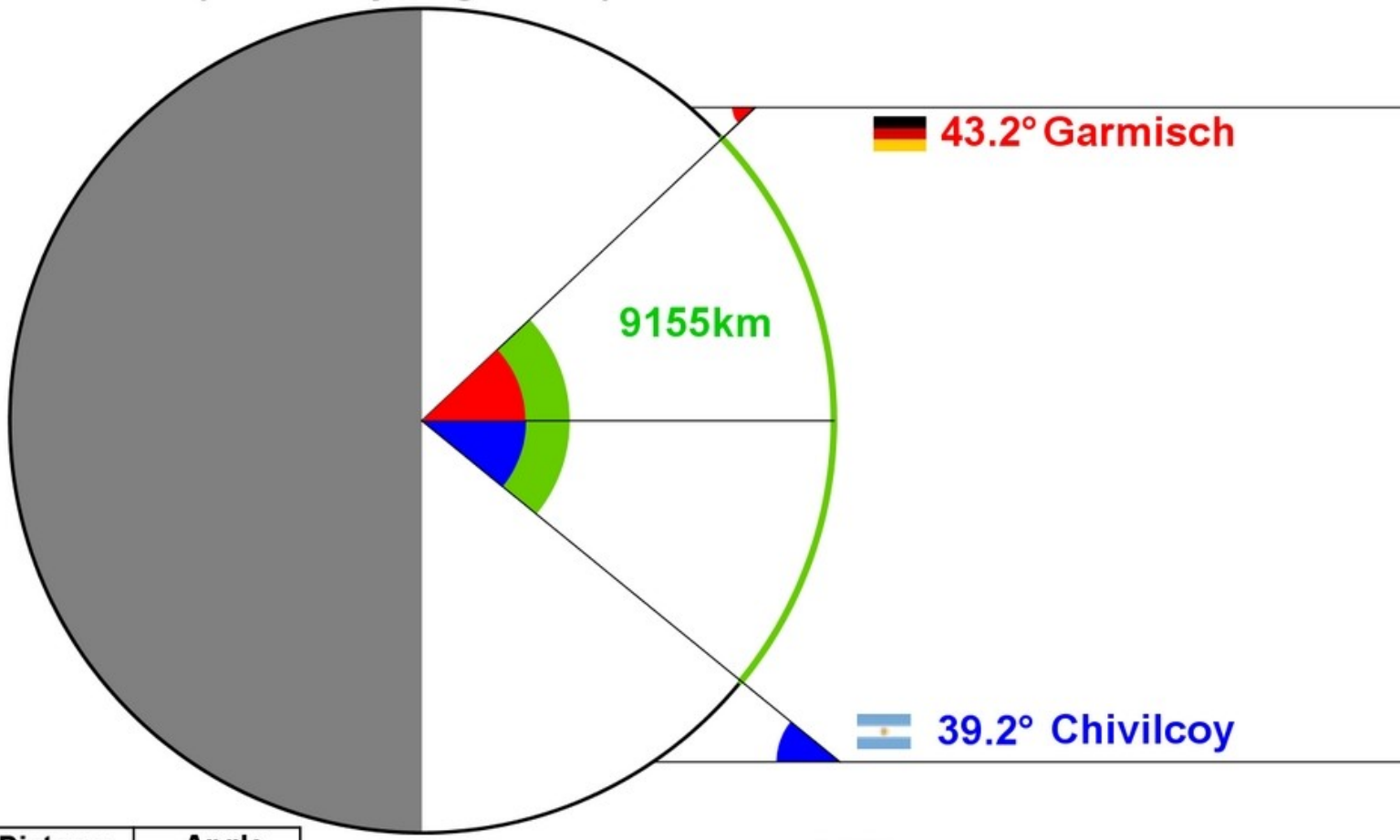


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Garmisch Partenkirchen	Germany	St.-Irmengard-Gymnasium	47.493	11.102

Date	Gnomon	Shadow	Angle
01 March 2021	21.0cm	30.0cm	55.0°
02 March 2021	12.5cm	17.5cm	54.5°
06 March 2021	13.5cm	18.0cm	53.1°
12 March 2021	19.8cm	24.3cm	50.8°
13 March 2021	14.0cm	16.8cm	50.2°
26 March 2021	18.0cm	18.0cm	45.0°
30 March 2021	14cm	13.2cm	43.3°
31 March 2021	10cm	9.4cm	43.2°

31/03/2021 (Garmisch-Germany) Latitude: 47.493°

31/03/2021 (Chivilcoy-Argentina) Latitude: -34.911°




Distance	Angle
circumference	360°
9155km	43.2°+39.2°

$$\text{circumference} = \frac{360^\circ \times 9155\text{km}}{43.2^\circ + 39.2^\circ} = 39998 \text{ km}$$



Guarne, Colombia

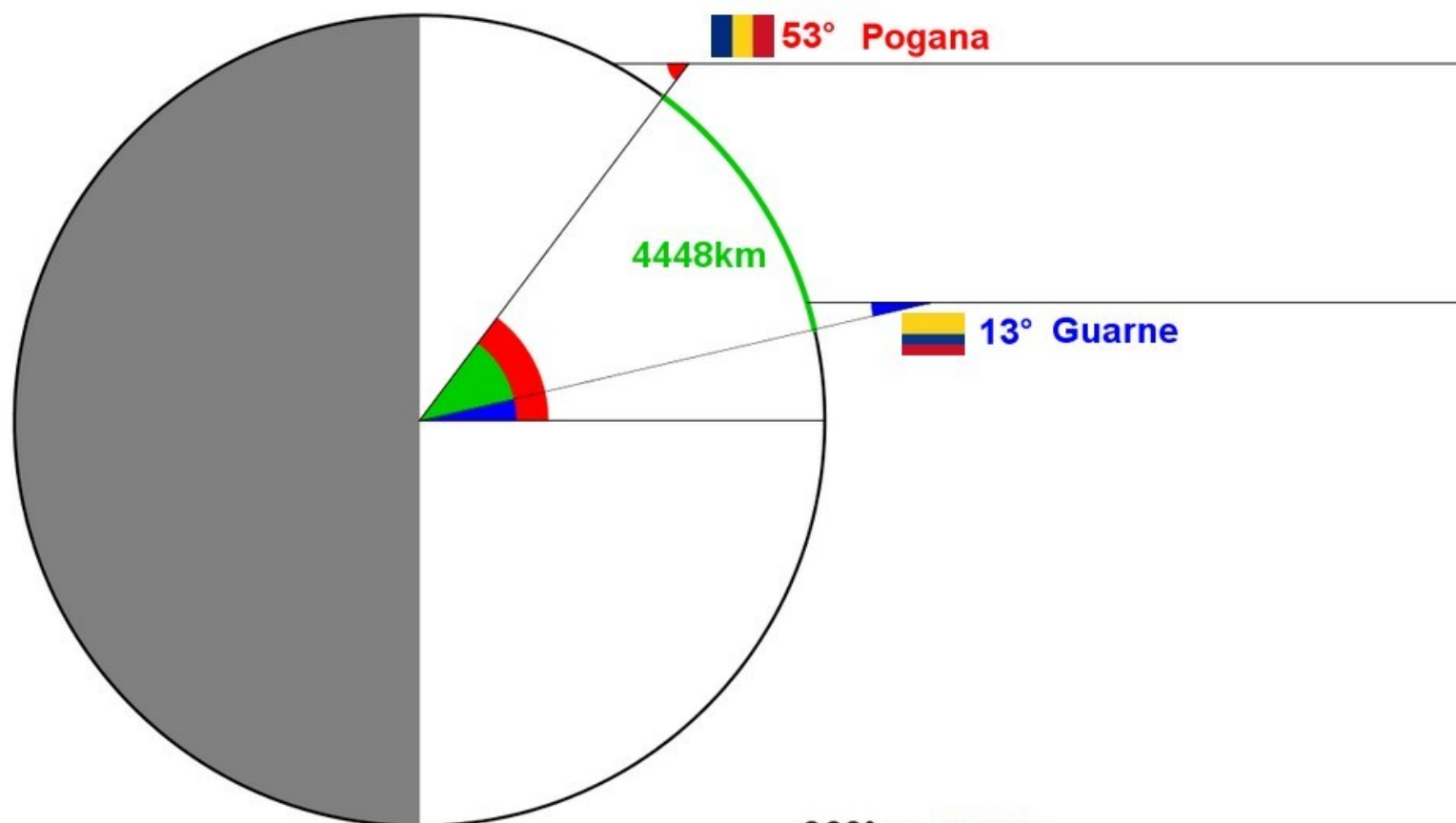


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Guarne	Colombia	Grupo Astrofanáticos	6.274	-76.522

Date	Gnomon	Shadow	Angle
03 March 2021	10.4cm	2.4cm	13.0°
16 March 2021	10.4cm	1.4cm	7.7°
18 March 2021	17.2cm	2.0cm	6.6°

03/03/2021 (Pogana-Romania) Latitude: 46.313°

03/03/2021 (Guarne-Colombia) Latitude: 6.274°



Distance	Angle
circumference	360°
4448km	53° - 13°

$$\text{circumference} = \frac{360^\circ \times 4448\text{km}}{53^\circ - 13^\circ} = 40032 \text{ km}$$



Hồ Chí Minh City NT, Việt Nam

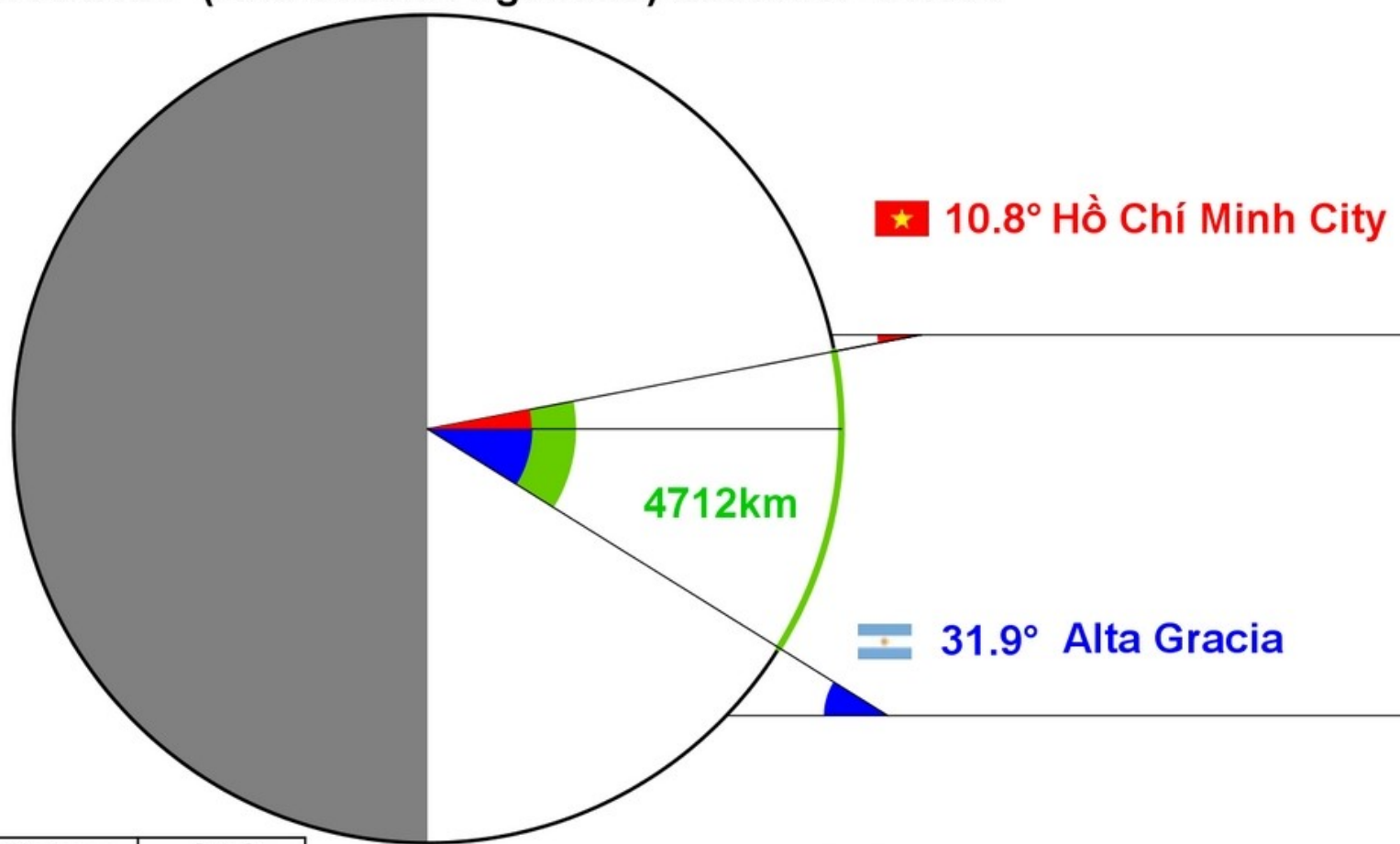


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Hồ Chí Minh City NT	Việt Nam	Nguyen Trai High School	10.760	106.712

Date	Gnomon	Shadow	Angle
20 March 2021	71.1cm	11.0cm	8.8°
21 March 2021	102cm	19.5cm	10.8°

21/03/2021 (Hồ Chí Minh City NT-Vietnam) Latitude: 10.76°

21/03/2021 (Alta Gracia-Argentina) Latitude: -31.656°



Distance	Angle
circumference	360°
4712km	10.8° + 31.9°

$$\text{circumference} = \frac{360^\circ \times 4712\text{km}}{10.8^\circ + 31.9^\circ} = 39726 \text{ km}$$



Chấm bóng



Chuẩn bị Poster

Toàn cảnh



Hồ Chí Minh City PNHS, Vietnam

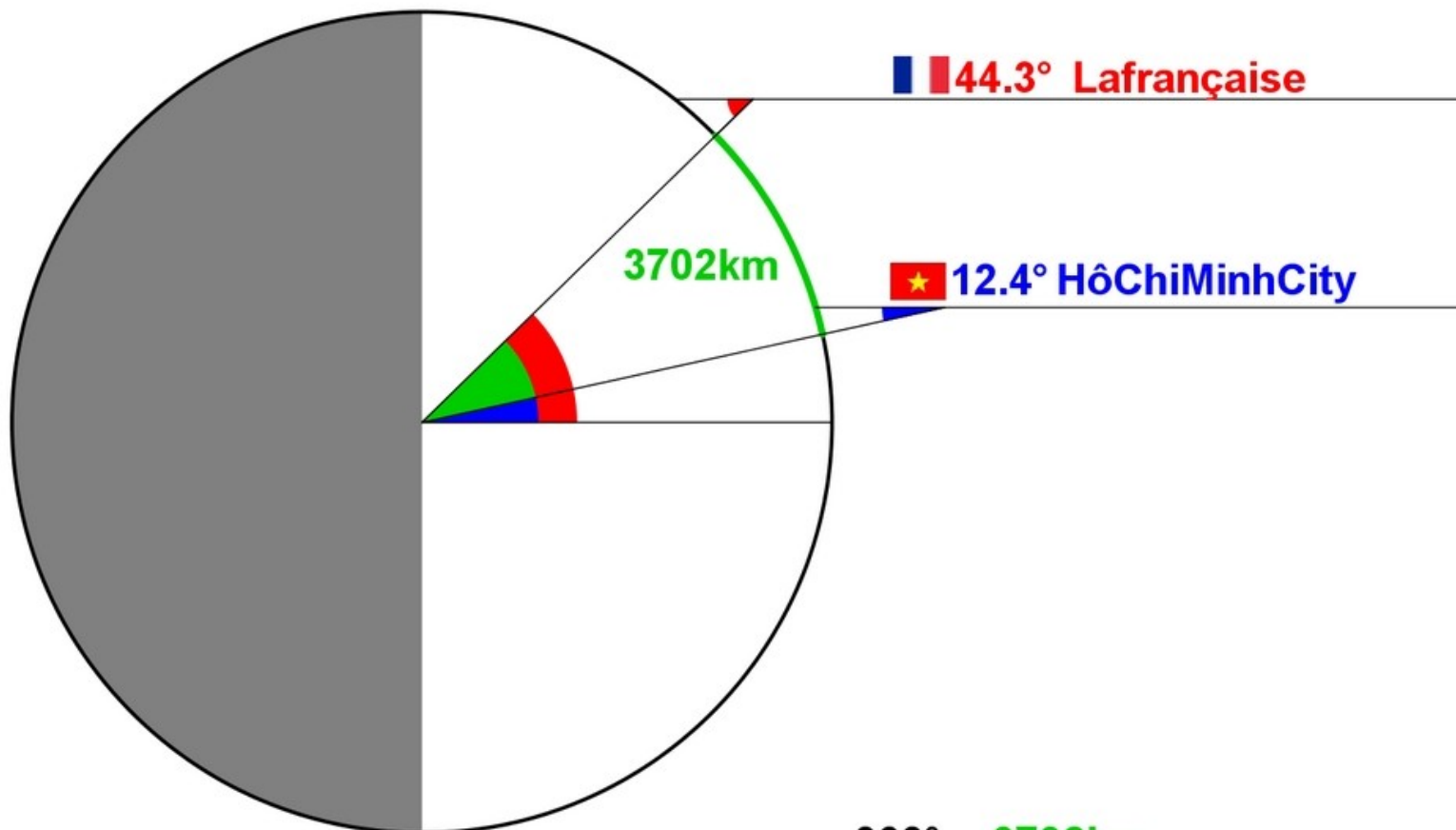


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Hồ Chí Minh City PNHS	Vietnam	Phú Nhuận High School	10.809	106.676

Date	Gnomon	Shadow	Angle
20 March 2021	50.0cm	11.0cm	12.4°

20/03/2021 (Lafrançaise-France) Latitude: 44.127°

20/03/2021 (HồChiMinhCity-Vietnam) Latitude: 10.809°



Distance	Angle
circumference	360°
3702km	44.3° - 12.4°

$$\text{circumference} = \frac{360^\circ \times 3702\text{km}}{44.3^\circ - 12.4^\circ} = 41778 \text{ km}$$



Ilion, Greece

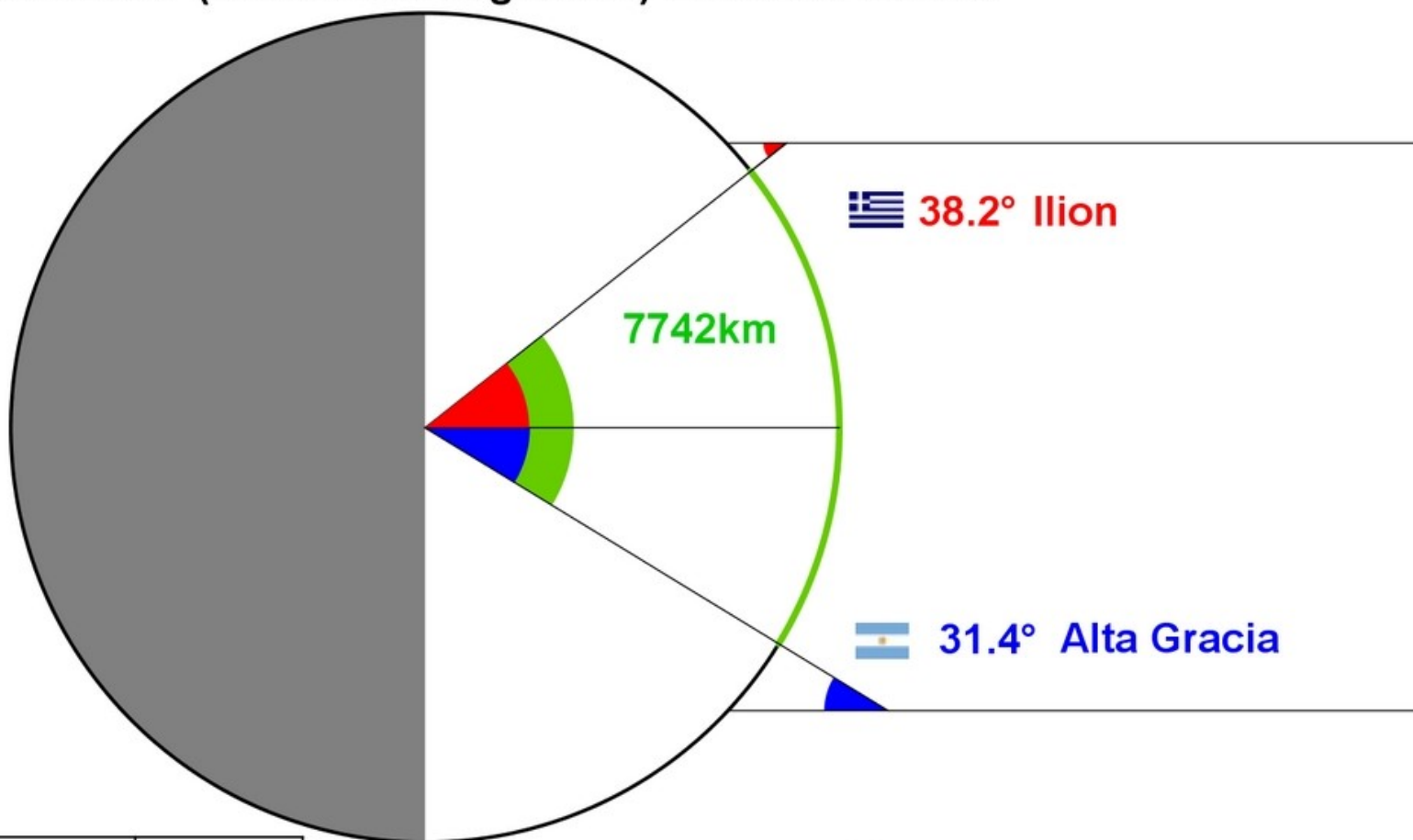


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Ilion	Greece	11th JuniorHigh School of Ilion	38.033	23.697

Date	Gnomon	Shadow	Angle
04 March 2021	15.5cm	15.0cm	44.1°
05 March 2021	15.5cm	15.2cm	44.4°
06 March 2021	21.0cm	21.6cm	45.8°
10 March 2021	16.1cm	14.5cm	42.0°
13 March 2021	18.0cm	15.5cm	40.7°
19 March 2021	10.0cm	7.4cm	36.5°
20 March 2021	33.0cm	26.0cm	38.2°
22 March 2021	15.5cm	11.8cm	37.3°
25 March 2021	27cm	19.5cm	35.8°
27 March 2021	28.4cm	19.6cm	34.6°

20/03/2021 (Ilion-Greece) Latitude: 38.033°

20/03/2021 (Alta Gracia-Argentina) Latitude: -31.656°




Distance	Angle
circumference	360°
7742km	38.2°+31.4°

$$\text{circumference} = \frac{360^\circ \times 7742\text{km}}{38.2^\circ + 31.4^\circ} = 40045 \text{ km}$$



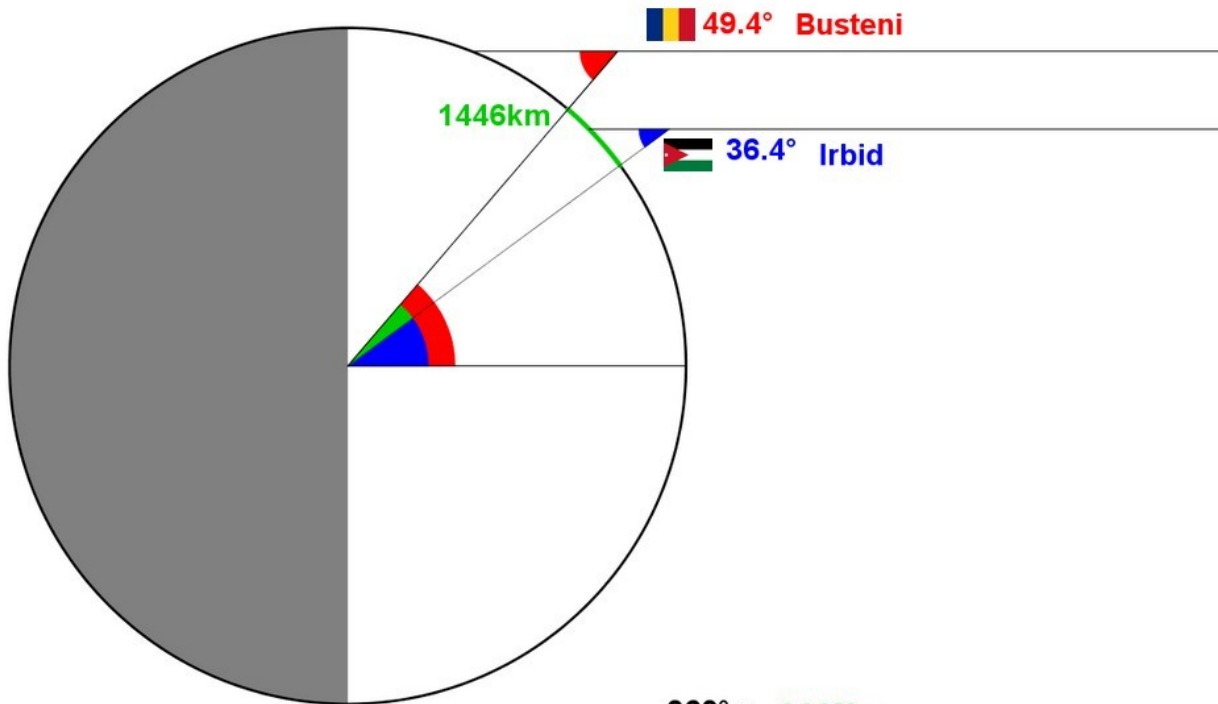
Irbid, Jordan



Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Irbid	Jordan	Mashar'eh Military School	32.405	35.588

Date	Gnomon	Shadow	Angle
09 March 2021	100.0cm	74.4cm	36.6°
10 March 2021	27.0cm	19.9cm	36.4°
13 March 2021	24.5cm	17.3cm	35.2°
14 March 2021	27.0cm	18.8cm	34.8°
15 March 2021	24.5cm	16.7cm	34.3°
16 March 2021	32.5cm	22.0cm	34.1°
17 March 2021	14.3cm	9.5cm	33.6°
18 March 2021	24.0cm	15.7cm	33.2°
19 March 2021	20cm	12.9cm	32.8°
20 March 2021	13.5cm	8.6cm	32.5°
21 March 2021	22.0cm	13.7cm	31.9°
23 March 2021	22.0cm	13.0cm	30.6°
27 March 2021	24.5cm	13.9cm	29.6°
28 March 2021	26cm	14.5cm	29.1°
29 March 2021	49.5cm	27.2cm	28.8°
31 March 2021	47.4cm	22.3cm	25.2°

10/03/2021 (Busteni-Romania) Latitude: 45.416°
 10/03/2021 (Irbid-Jordan) Latitude: 32.405°




Distance	Angle
circumference	360°
1446km	49.4° - 36.4°

$$\text{circumference} = \frac{360^\circ \times 1446\text{km}}{49.4^\circ - 36.4^\circ} = 40043 \text{ km}$$



Istanbul, Turkey

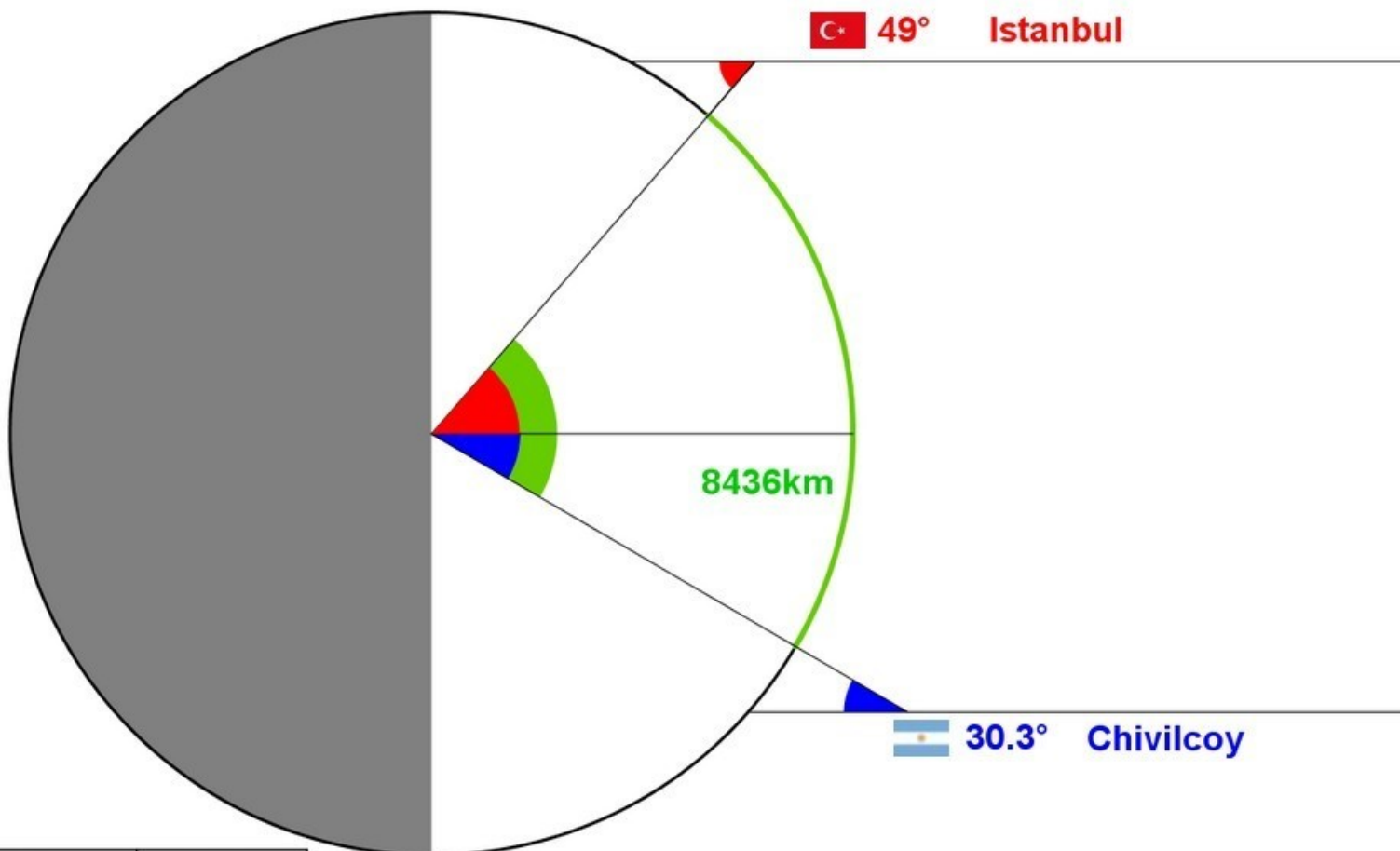


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Istanbul	Turkey	Zübeyde Hanım Secondary school	41.005	28.976

Date	Gnomon	Shadow	Angle
08 March 2021	20.0cm	23.0cm	49.0°
09 March 2021	17.0cm	16.0cm	43.3°
18 March 2021	17cm	15.5cm	42.4°

08/03/2021 (Istanbul-Turkey) Latitude: 41.024°

08/03/2020 (Chivilcoy-Argentina) Latitude: -34.911°




Distance	Angle
circumference	360°
8436km	49° + 30.3°

$$\text{circumference} = \frac{360^\circ \times 8436\text{km}}{49^\circ + 30.3^\circ} = 38297 \text{ km}$$



Lafrançaise, France

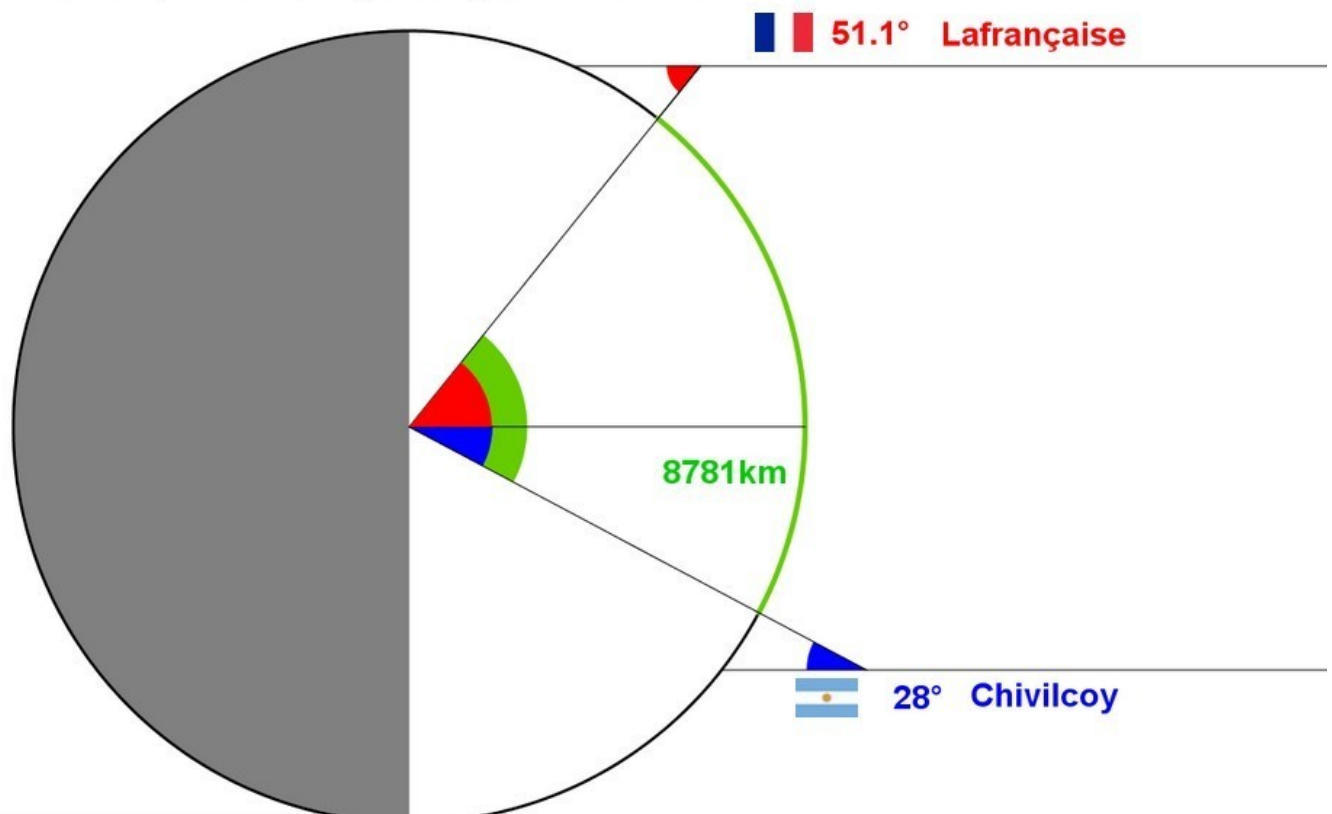


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Lafrançaise	France	Collège Antonin Perbosc	44.127	1.237

Date	Gnomon	Shadow	Angle
02 March 2021	100.0cm	124.0cm	51.1°
04 March 2021	100.0cm	120.4cm	50.3°
05 March 2021	100.0cm	118.9cm	49.9°
08 March 2021	12.5cm	14.3cm	48.8°
09 March 2021	100.0cm	112.0cm	48.2°
12 March 2021	100.0cm	108.7cm	47.4°
14 March 2021	12.5cm	13.2cm	46.6°
16 March 2021	100.0cm	103.4cm	46.0°
19 March 2021	100cm	98.5cm	44.6°
20 March 2021	12.5cm	12.2cm	44.3°
21 March 2021	16.2cm	16.6cm	45.7°
23 March 2021	100.0cm	93.3cm	43.0°
26 March 2021	100.0cm	90.0cm	42.0°
30 March 2021	100cm	85cm	40.4°

02/03/2021 (Lafrançaise-France) Latitude: 44.127°

02/03/2021 (Chivilcoy-Argentina) Latitude: -34.911°



Distance	Angle
circumference	360°
8781km	51.1° + 28°

$$\text{circumference} = \frac{360^\circ \times 8781\text{km}}{51.1^\circ + 28^\circ} = 39964 \text{ km}$$



Mărgineni, Romania

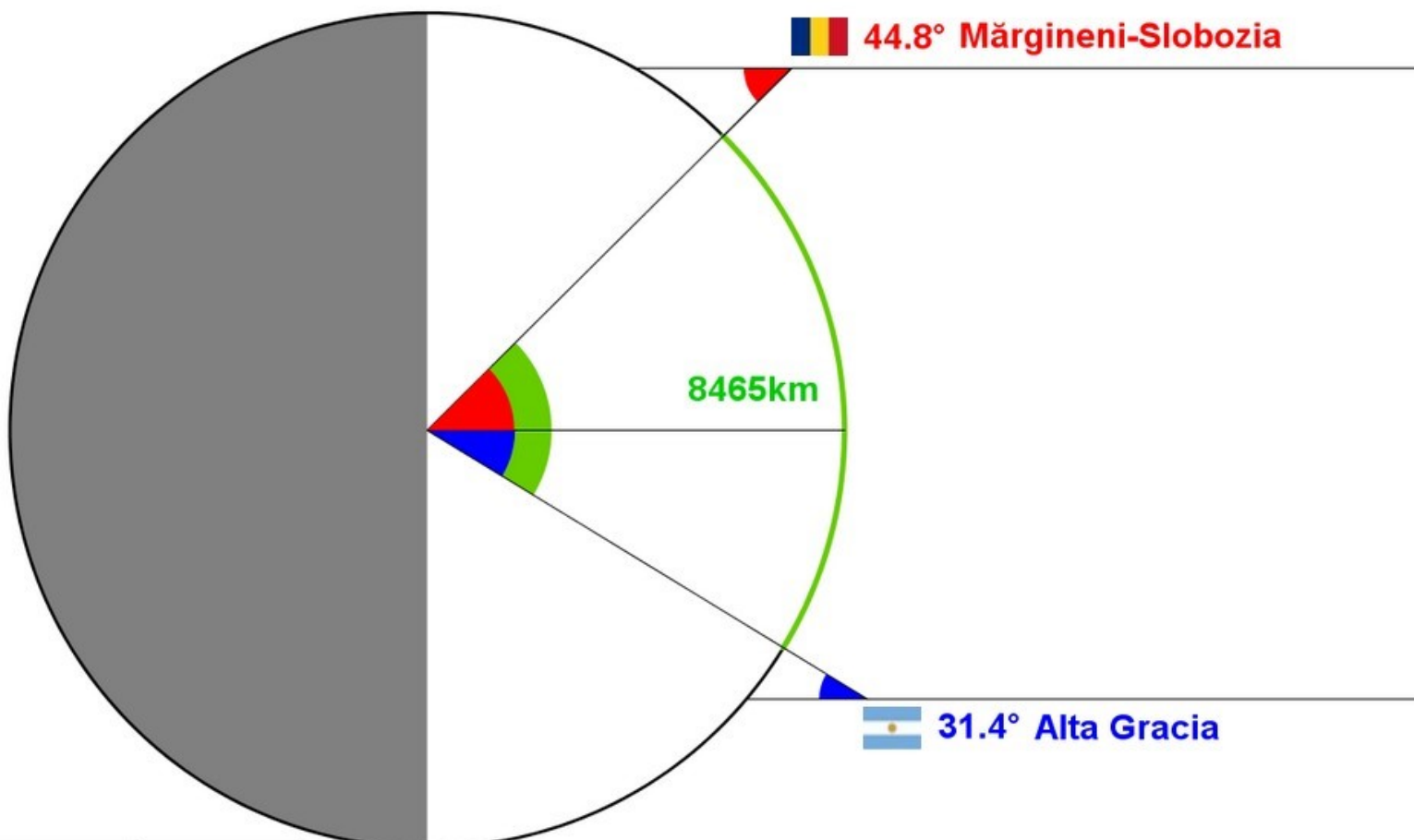


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Mărgineni	Romania	Gh. Popescu School	44.533	24.554

Date	Gnomon	Shadow	Angle
20 March 2021	100.0cm	99.3cm	44.8°

20/03/2021 (Mărgineni-Slobozia-Romania) Latitude: 44.533°

20/03/2021 (Alta Gracia-Argentina) Latitude: -31.656°

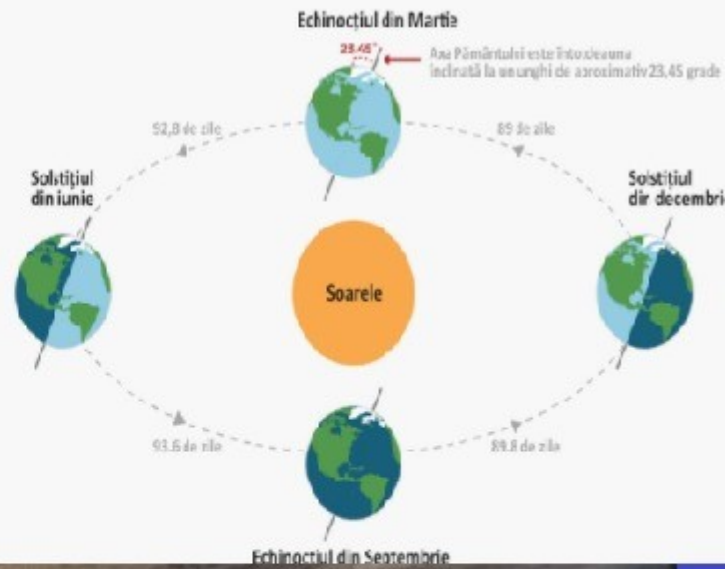


Distance	Angle
circumference	360°
8465km	44.8° + 31.4°

$$\text{circumference} = \frac{360^\circ \times 8465\text{km}}{44.8^\circ + 31.4^\circ} = 39992 \text{ km}$$



Echinoxurile și solstițiile Pământului




The spring equinox, 20 march 2021

Secondary School Gh. Popescu, Mărgineni-Slobozia

ROMANIA

Medellín, Colombia

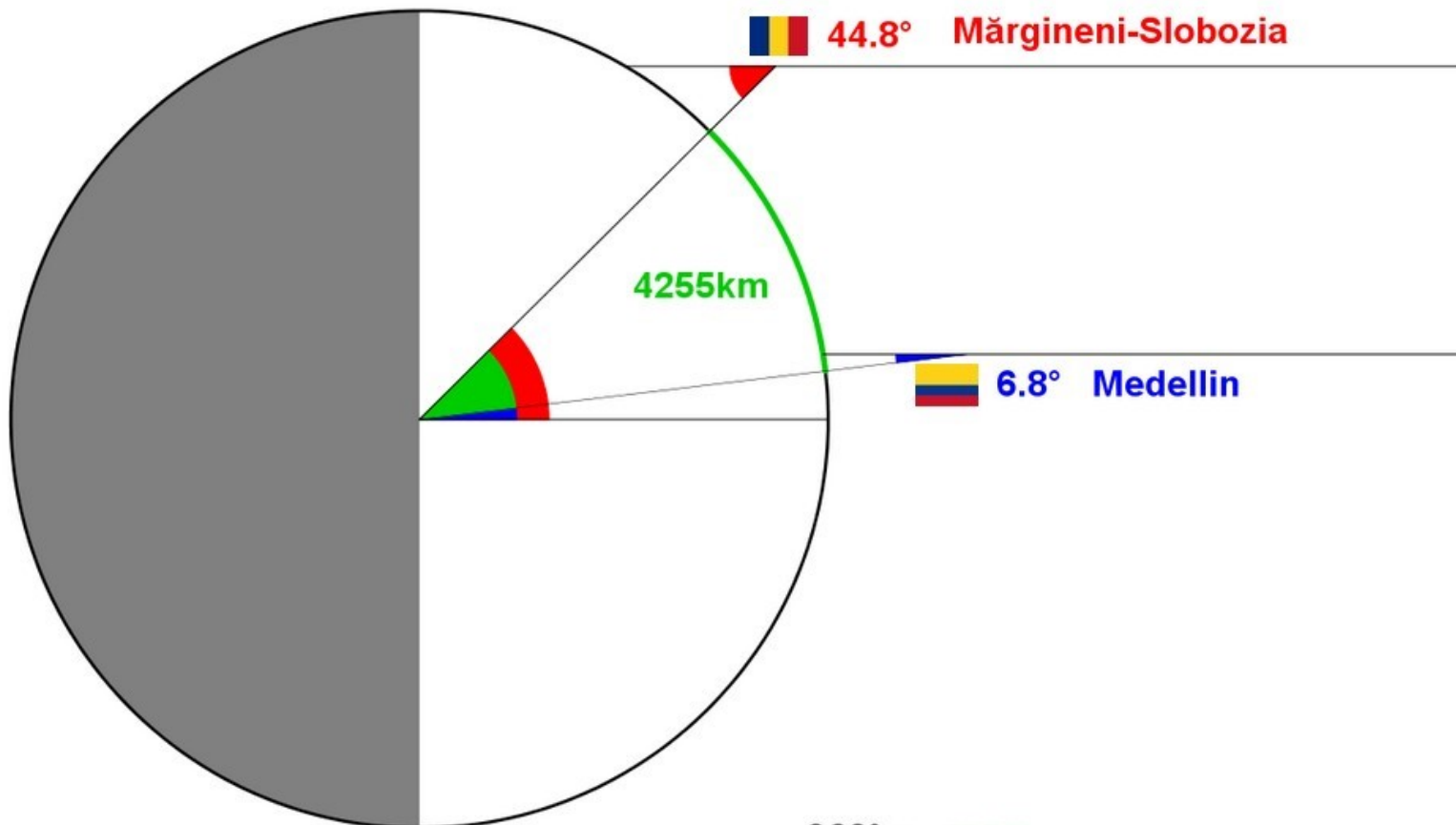


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Medellín	Colombia	Grupo Astrofánaticos	6.231	-75.591

Date	Gnomon	Shadow	Angle
19 March 2021	17cm	2.5cm	8.4°
20 March 2021	7.5cm	0.9cm	6.8°

20/03/2021 (Mărgineni-Slobozia-Romania) Latitude: 44.533°

20/03/2021 (Medellin-Colombia) Latitude: 6.231°

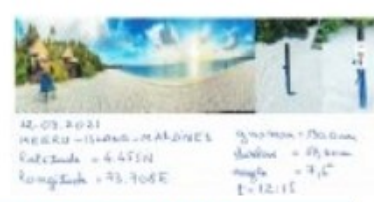


Distance	Angle
circumference	360°
4255km	44.8° - 6.8°

$$\text{circumference} = \frac{360^\circ \times 4255\text{km}}{44.8^\circ - 6.8^\circ} = 40311 \text{ km}$$



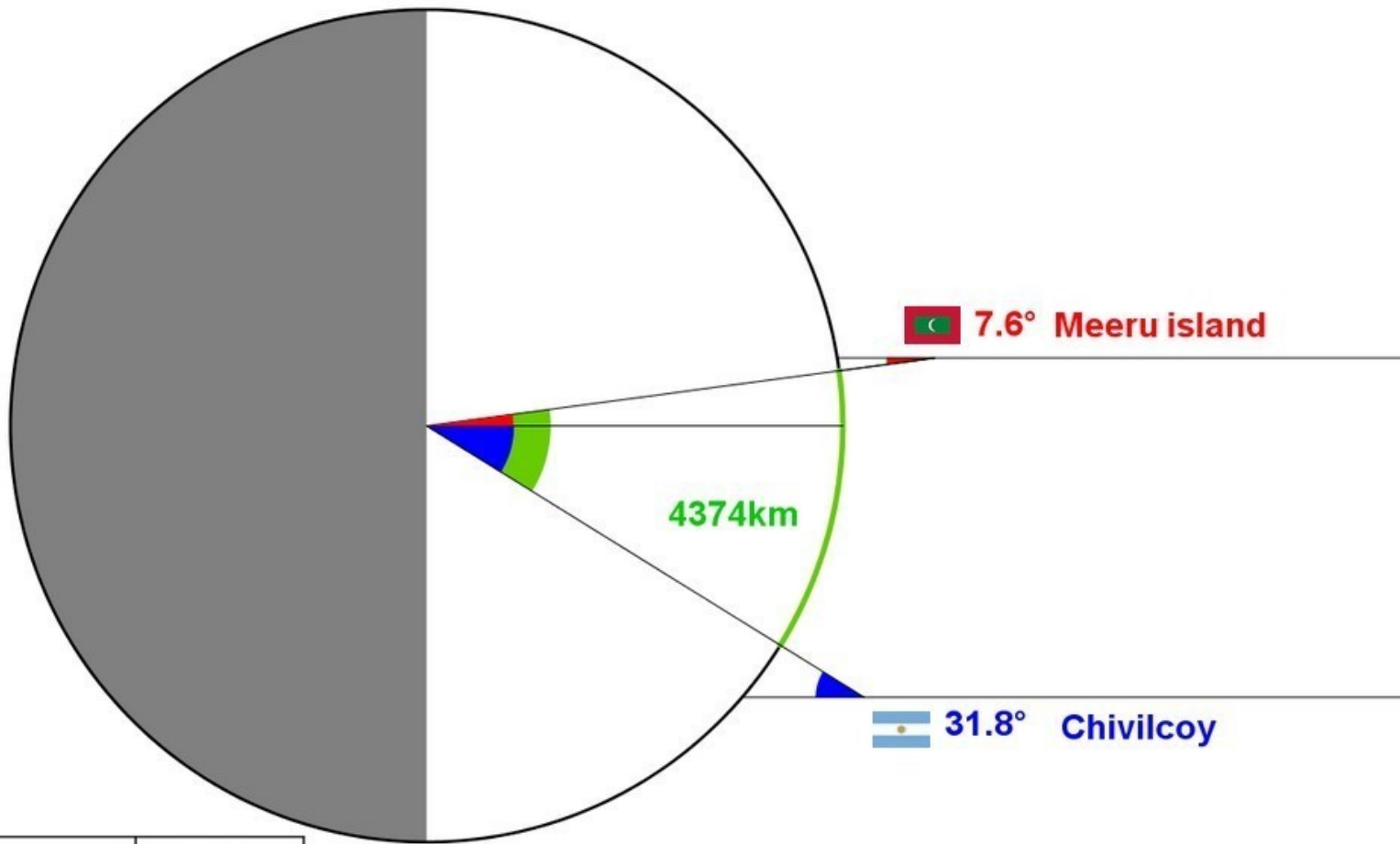
Meeru island, Maldives



Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Meeru island	Maldives		4.455	73.708

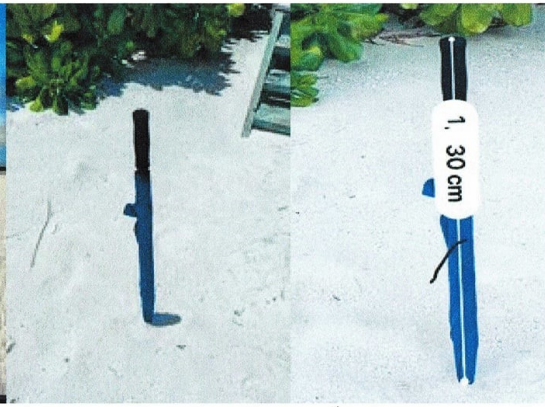
Date	Gnomon	Shadow	Angle
12 March 2020	130.0cm	17.4cm	7.6°
15 March 2021	85.0cm	9.6cm	6.4°

12/03/2020 (Meeru island-Maldives) Latitude: 4.455°
 12/03/2020 (Chivilcoy-Argentina) Latitude: -34.911°



Distance	Angle
circumference	360°
4374km	7.6° + 31.8°

circumference = $\frac{360^\circ \times 4374\text{km}}{7.6^\circ + 31.8^\circ} = 39965 \text{ km}$



12.03.2021

MEERU-ISLAND-MALDIVES

Latitude = 4.455N

Longitude = 73.708E

gnomon = 130.0 cm

shadow = 17,4 cm

angle = $7,6^\circ$

t = 12:15



15/03/2021

MEERU ISLAND-MALVINES

Latitude = 4.455 N

Longitude = 73.708 E

Gnomon = 85.0 cm


Shadow = 9.6 cm

Angle = 6.4

Solar noon = 12:14

Méier, Brazil

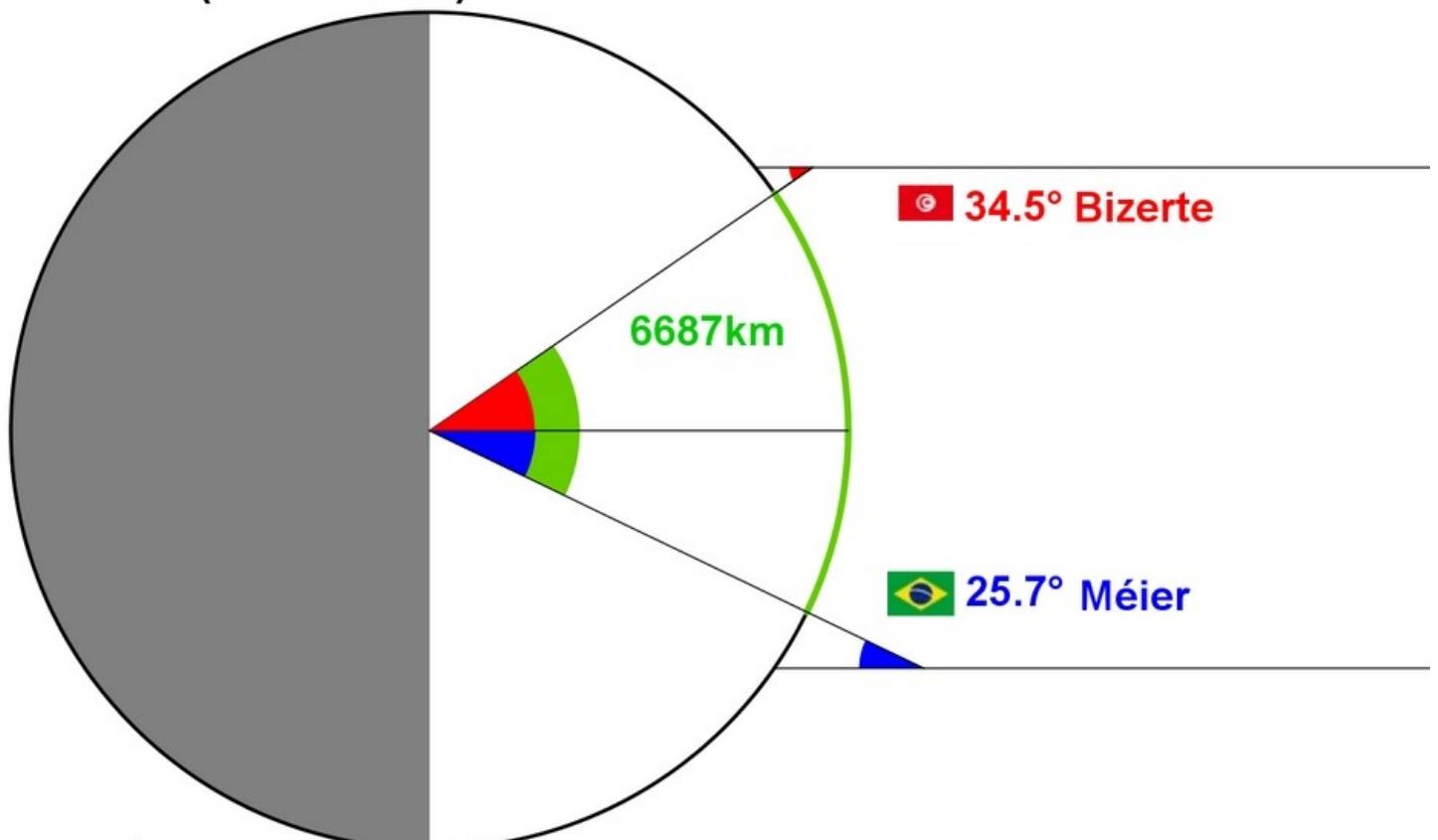


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Méier	Brazil	Escola Municipal Bento Ribeiro	-22.904	-43.280

Date	Gnomon	Shadow	Angle
10 March 2021	10.0cm	-2.0cm	-11.3°
12 March 2021	20.0cm	-10.0cm	-26.6°
17 March 2021	6.0cm	-2.0cm	-18.4°
20 March 2021	12.0cm	-5.0cm	-22.6°
21 March 2021	54cm	-28cm	-27.4°
22 March 2021	54cm	-16cm	-16.5°
24 March 2021	34.0cm	-8.0cm	-13.2°
26 March 2021	54cm	-26cm	-25.7°
27 March 2021	54.0cm	-28.0cm	-27.4°
28 March 2021	20cm	-8cm	-21.8°
29 March 2021	54cm	-32cm	-30.7°
30 March 2021	54cm	-30cm	-29.1°
31 March 2021	54cm	-22cm	-22.2°

26/03/2021 (Bizerte-Tunisia) Latitude: 37.284°

26/03/2021 (Méier-Brazil) Latitude: -22.904°



Distance	Angle
circumference	360°
6687km	34.5°+25.7°

$$\text{circumference} = \frac{360^\circ \times 6687\text{km}}{34.5^\circ + 25.7^\circ} = 39989 \text{ km}$$



Merlara, Italy

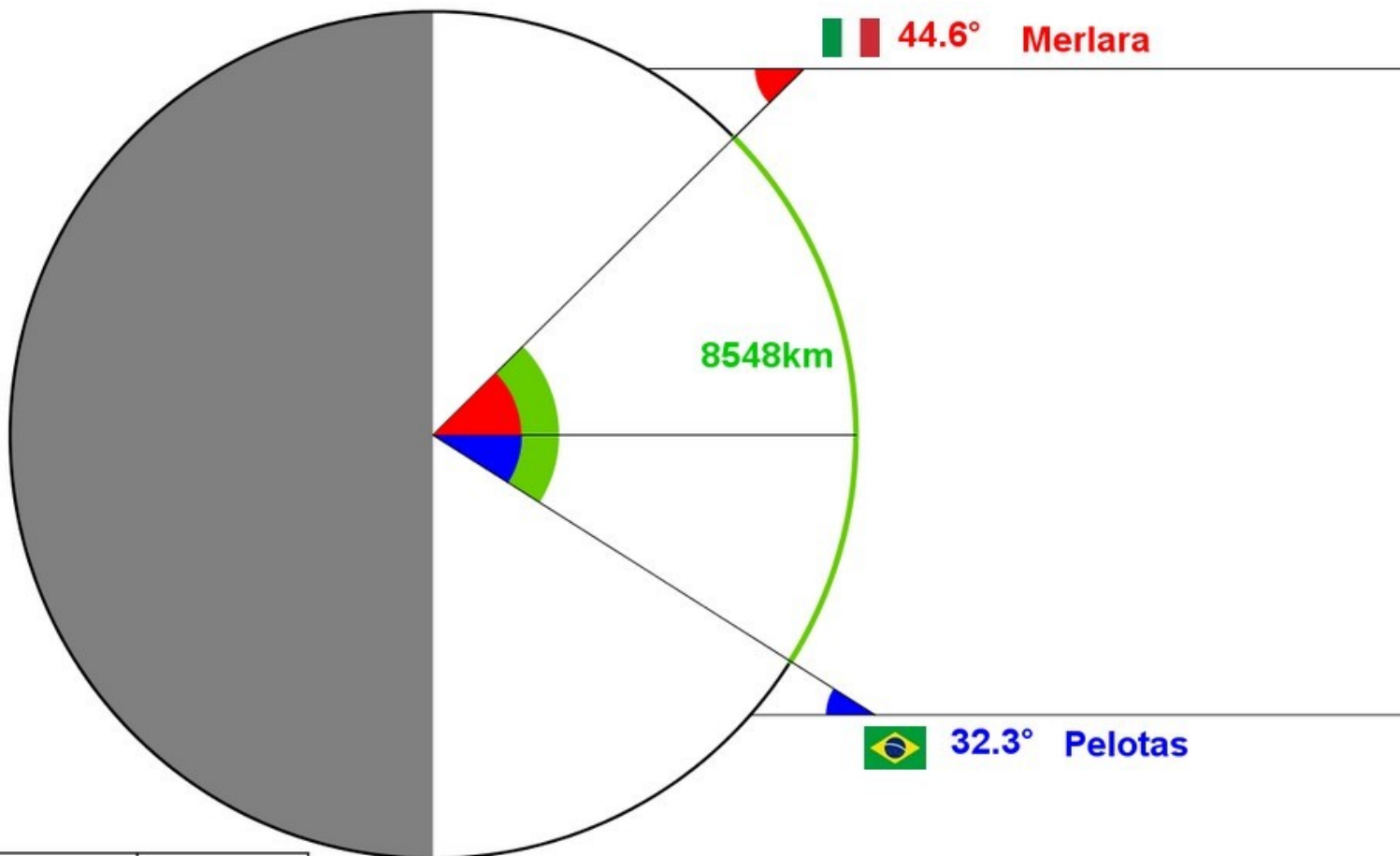


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Merlara	Italy	Lower Secondary School "Dante Alighieri"	45.166	11.445

Date	Gnomon	Shadow	Angle
03 March 2021	100.0cm	128.0cm	52.0°
08 March 2021	18.8cm	21.0cm	48.2°
10 March 2021	39.0cm	42.0cm	47.1°
22 March 2021	38.5cm	38cm	44.6°

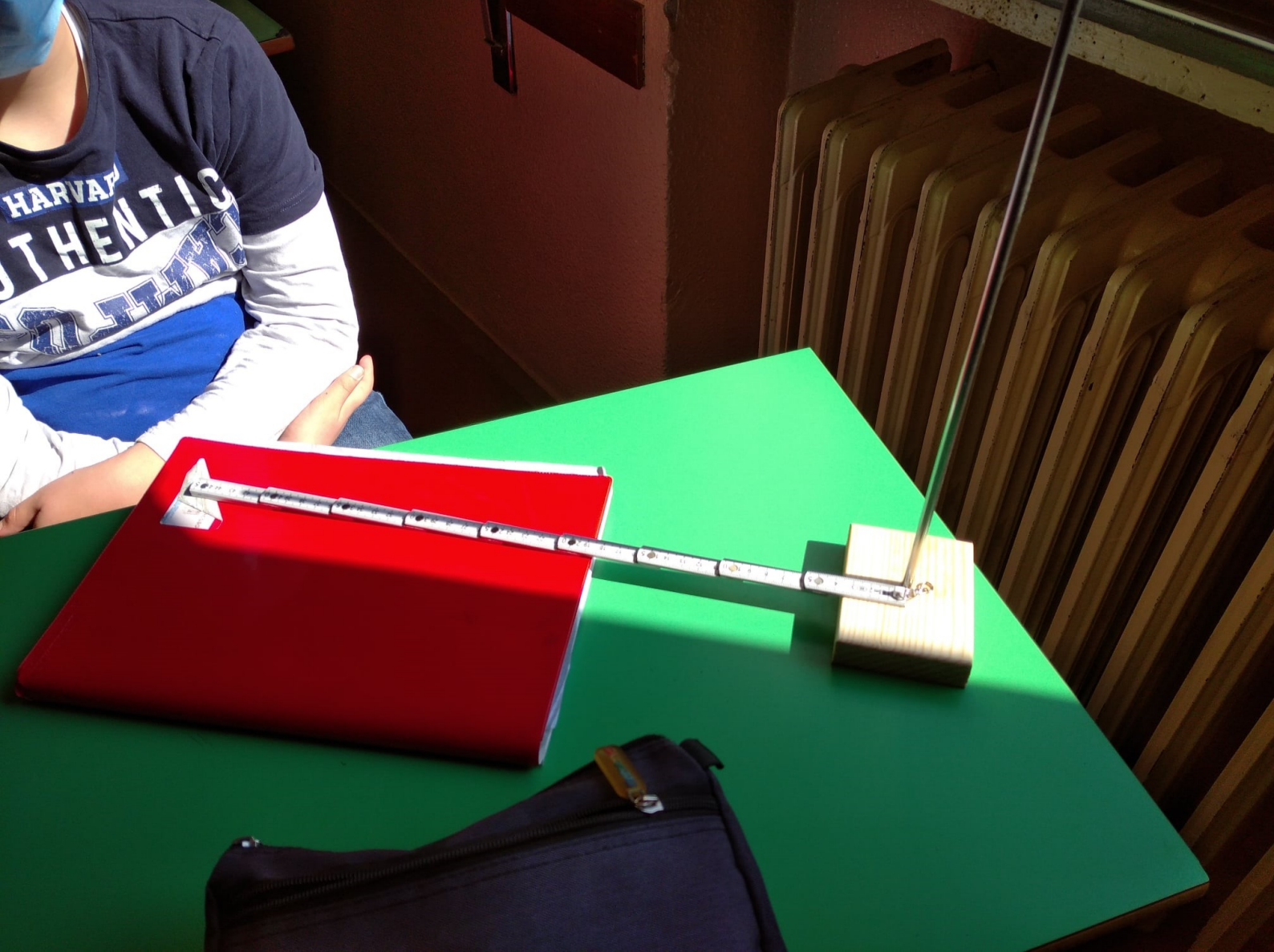
22/03/2021 (Merlara-Italy) Latitude: 45.166°

22/03/2021 (Pelotas-Brazil) Latitude: -31.775°



Distance	Angle
circumference	360°
8548km	44.6° + 32.3°

$$\text{circumference} = \frac{360^\circ \times 8548\text{km}}{44.6^\circ + 32.3^\circ} = 40017 \text{ km}$$



Mumbai, INDIA

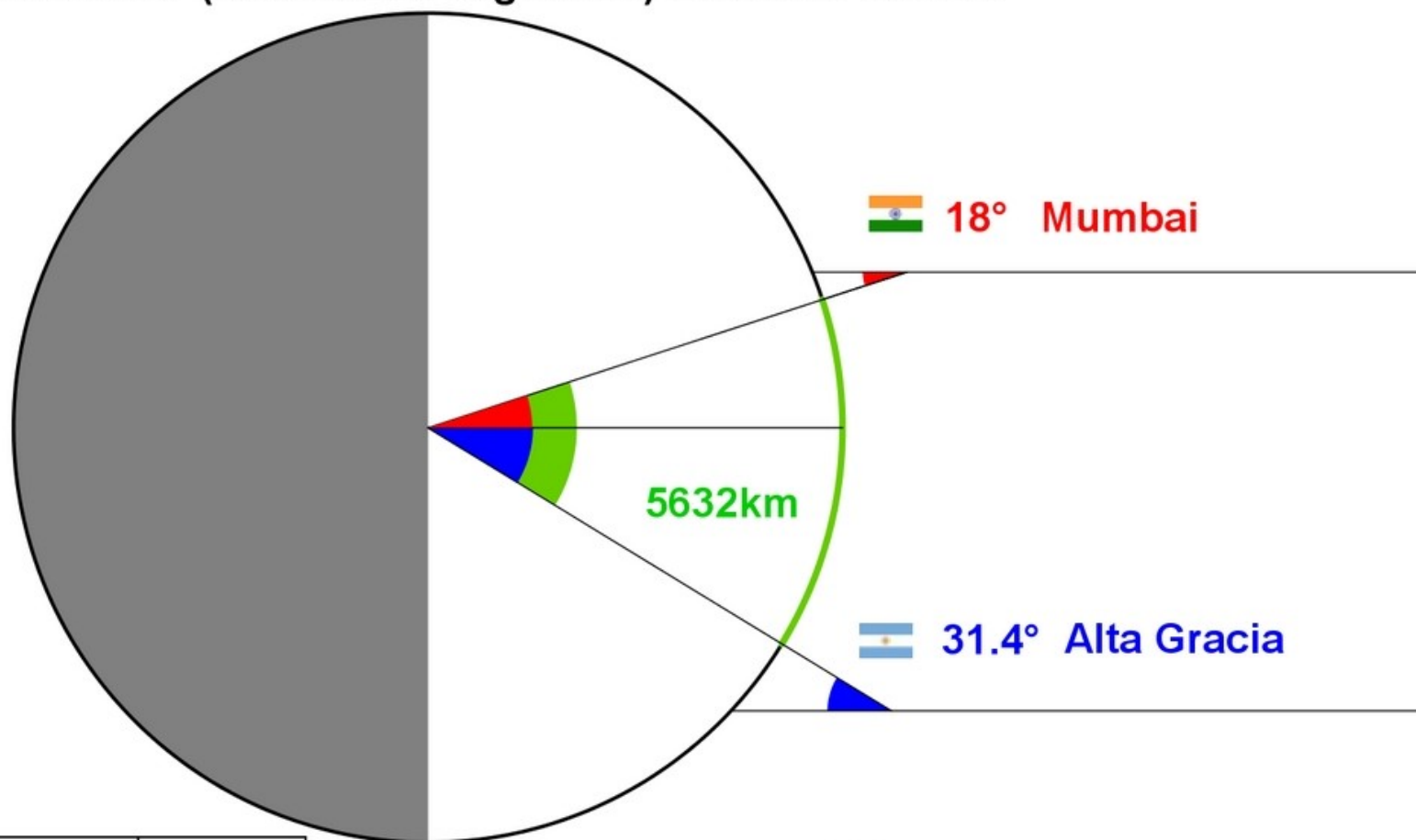


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Mumbai	India	Atomic Energy Central School - 6	19.037	72.912

Date	Gnomon	Shadow	Angle
20 March 2021	18.5cm	6cm	18.0°

20/03/2021 (Mumbai-India) Latitude: 19.037°

20/03/2021 (Alta Gracia-Argentina) Latitude: -31.656°



Distance	Angle
circumference	360°
5632km	18° + 31.4°

$$\text{circumference} = \frac{360^\circ \times 5632\text{km}}{18^\circ + 31.4^\circ} = 41043 \text{ km}$$



Patos de Minas, Brazil

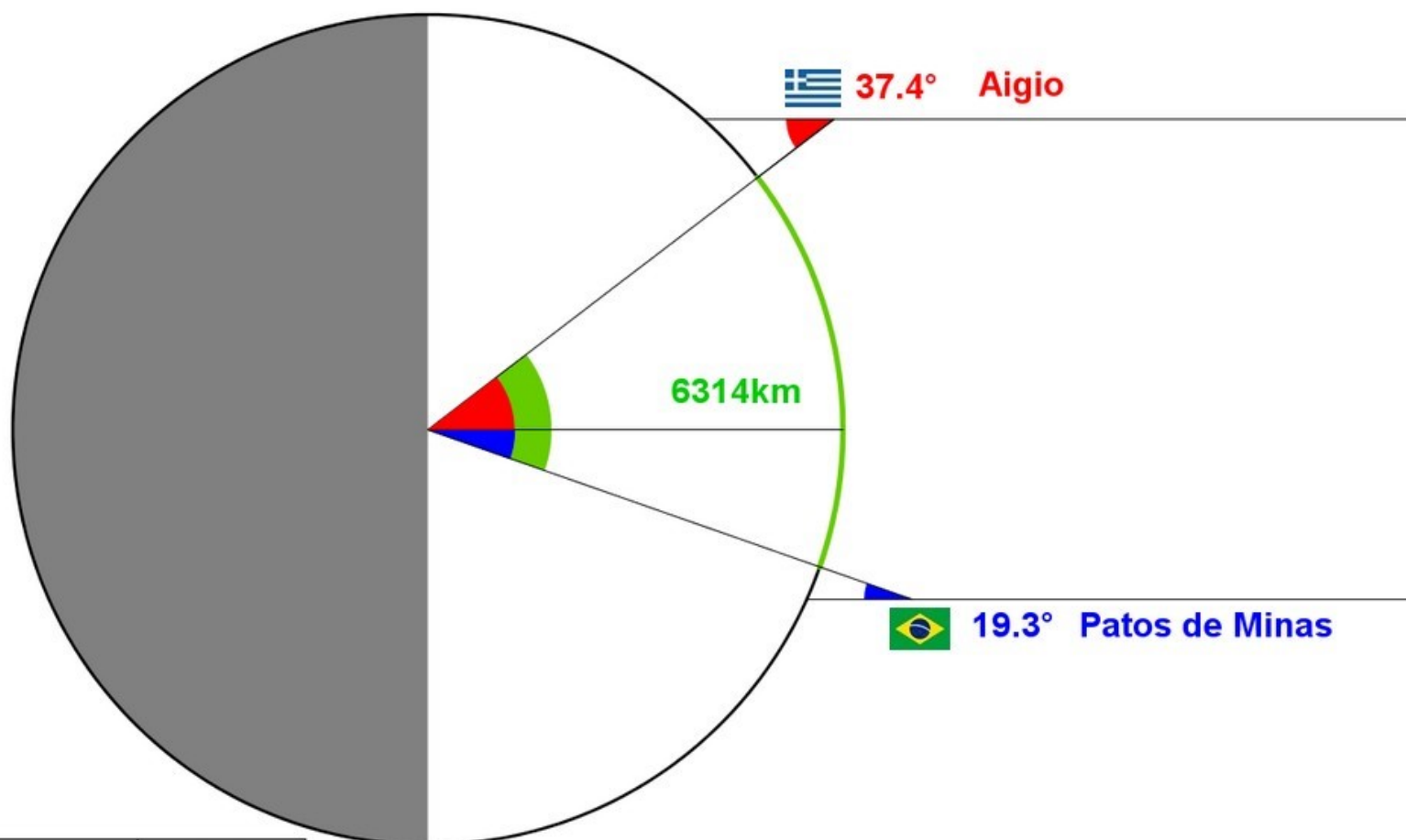


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Patos de Minas	Brazil	Pato de Mines Observatory	-18.580	-46.489

Date	Gnomon	Shadow	Angle
21 March 2021	100cm	-35cm	-19.3°
22 March 2021	100cm	-36.8cm	-20.2°

21/03/2021 (Aigio-Greece) Latitude: 38.252°

21/03/2021 (Patos de Minas-Brazil) Latitude: -18.58°



circumference =

$$\frac{360^\circ \times 6314\text{km}}{37.4^\circ + 19.3^\circ} = 40089 \text{ km}$$

Distance	Angle
circumference	360°
6314km	37.4° + 19.3°



Pelotas, Brazil

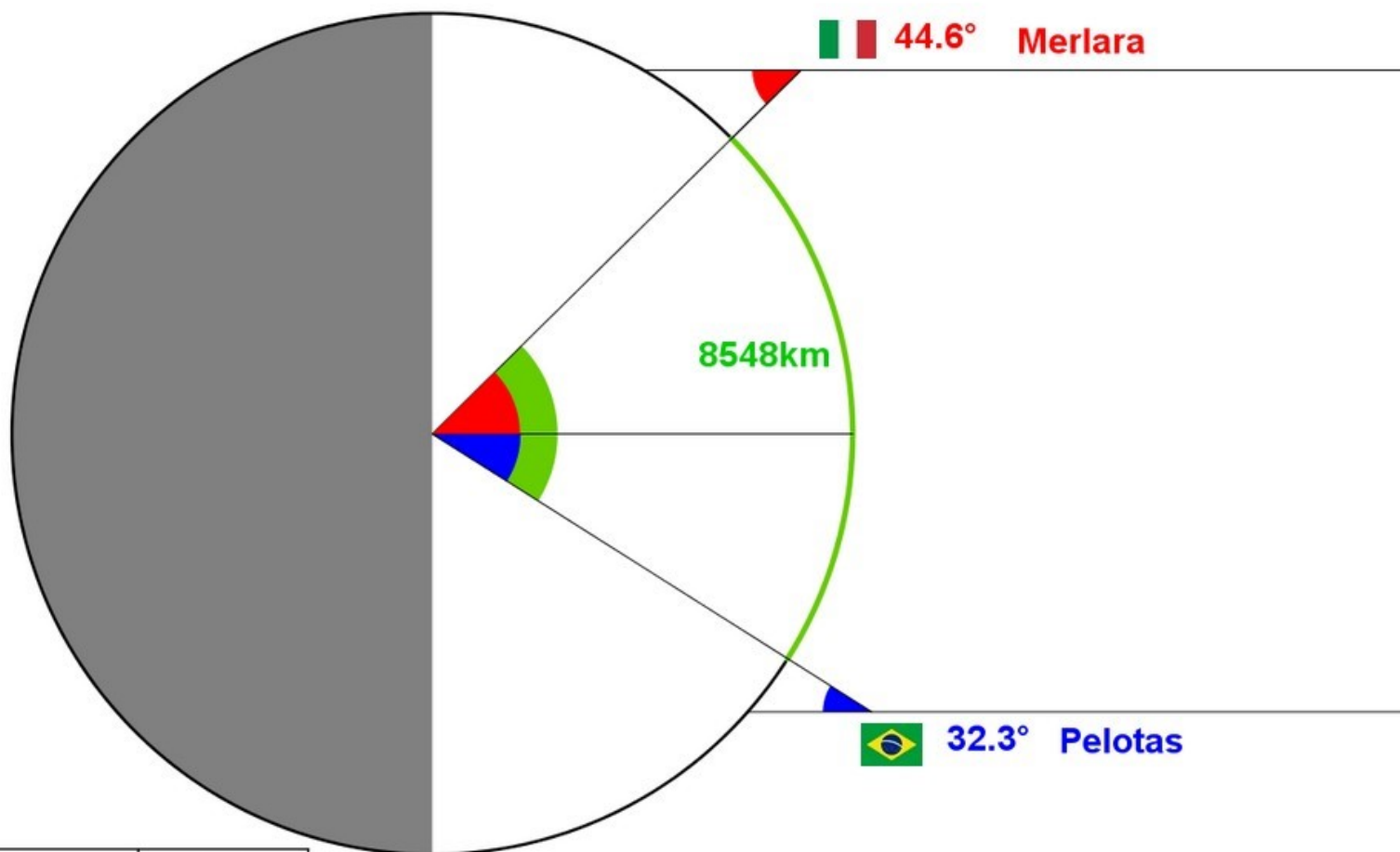


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Pelotas	Brazil	Federal University of Pelotas	-31.772	-52.329

Date	Gnomon	Shadow	Angle
20 March 2021	22.0cm	-11.6cm	-27.8°
22 March 2021	22.5cm	-14.2cm	-32.3°

22/03/2021 (Merlara-Italy) Latitude: 45.166°

22/03/2021 (Pelotas-Brazil) Latitude: -31.775°




Distance	Angle
circumference	360°
8548km	44.6° + 32.3°

$$\text{circumference} = \frac{360^\circ \times 8548\text{km}}{44.6^\circ + 32.3^\circ} = 40017 \text{ km}$$



Pogana, Romania

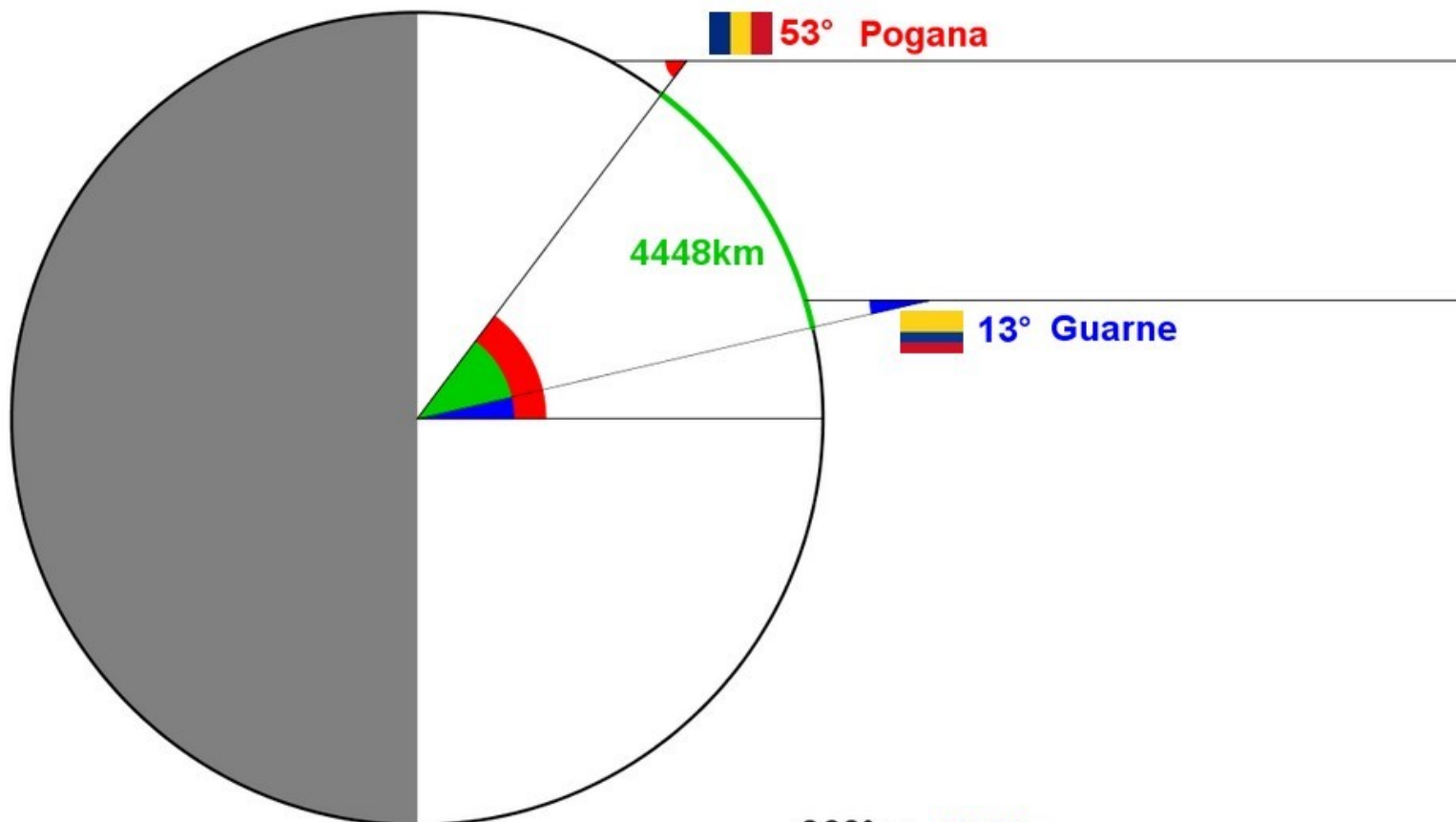


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Pogana	Romania	Scoala Gimnaziala Nr.1 Pogana	46.313	27.575

Date	Gnomon	Shadow	Angle
03 March 2021	20.0cm	26.5cm	53.0°
08 March 2021	20.0cm	25.0cm	51.3°
23 March 2021	20cm	20.6cm	45.8°
26 March 2021	20.0cm	19.5cm	44.3°

03/03/2021 (Pogana-Romania) Latitude: 46.313°

03/03/2021 (Guarne-Colombia) Latitude: 6.274°




Distance	Angle
circumference	360°
4448km	53° - 13°

$$\text{circumference} = \frac{360^\circ \times 4448\text{km}}{53^\circ - 13^\circ} = 40032 \text{ km}$$



Rio de Janeiro CENOM, Brazil

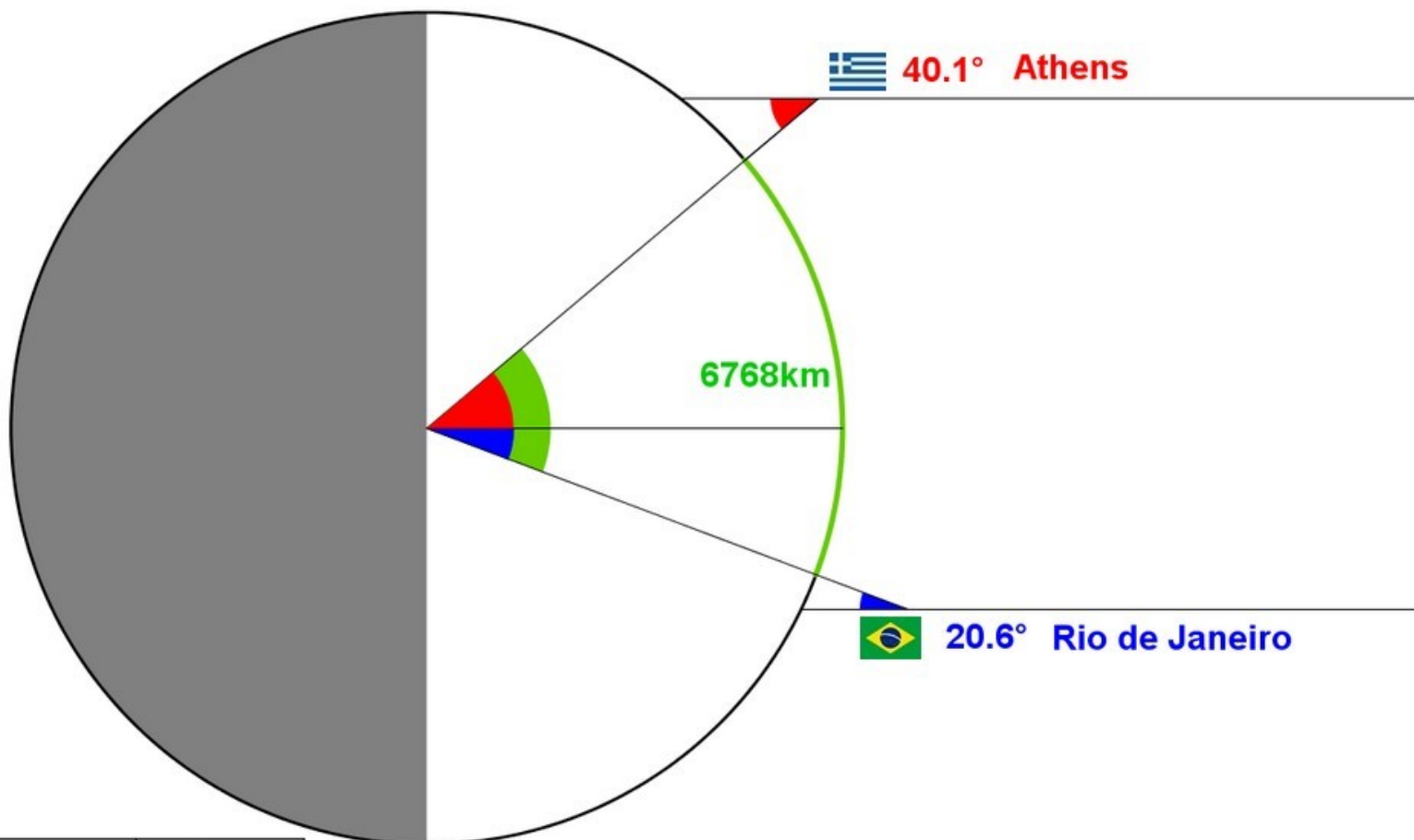


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Rio de Janeiro	Brazil	Centro Educacional Nosso Mundo	-22.890	-43.317

Date	Gnomon	Shadow	Angle
17 March 2021	20.0cm	-7.5cm	-20.6°
18 March 2021	20.0cm	-7.5cm	-20.6°
21 March 2021	7cm	-2cm	-15.9°
25 March 2021	20.0cm	-8.0cm	-21.8°
26 March 2021	21cm	-7cm	-18.4°
28 March 2021	10cm	-4cm	-21.8°
29 March 2021	10cm	-4cm	-21.8°
30 March 2021	10cm	-4cm	-21.8°
31 March 2021	10cm	-4cm	-21.8°

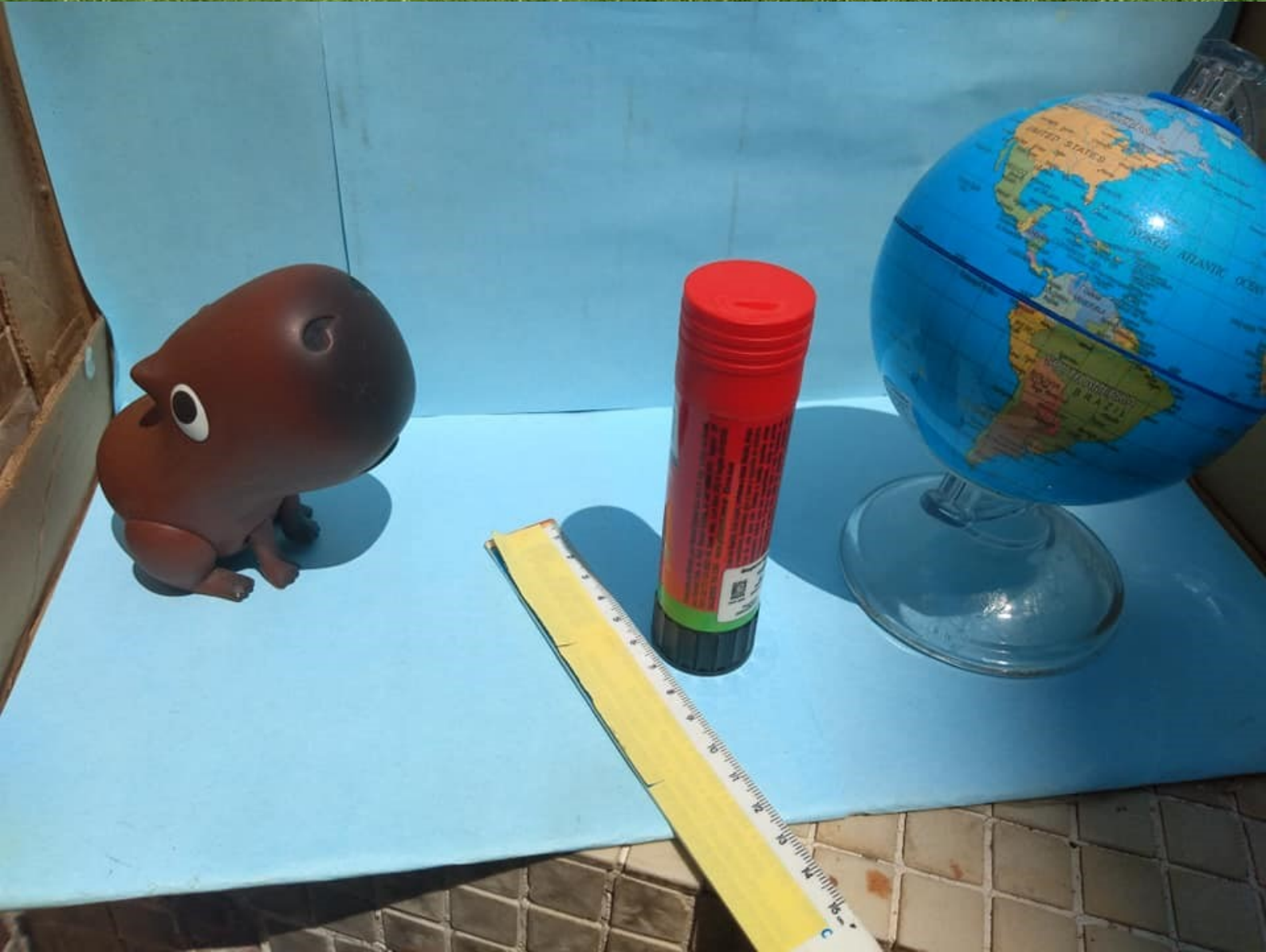
18/03/2021 (Athens-Greece) Latitude: 38.027°

18/03/2021 (Rio de Janeiro-Brazil) Latitude: -22.89°



Distance	Angle
circumference	360°
6768km	40.1° + 20.6°

$$\text{circumference} = \frac{360^\circ \times 6768\text{km}}{40.1^\circ + 20.6^\circ} = 40140 \text{ km}$$



Santarém, Brazil

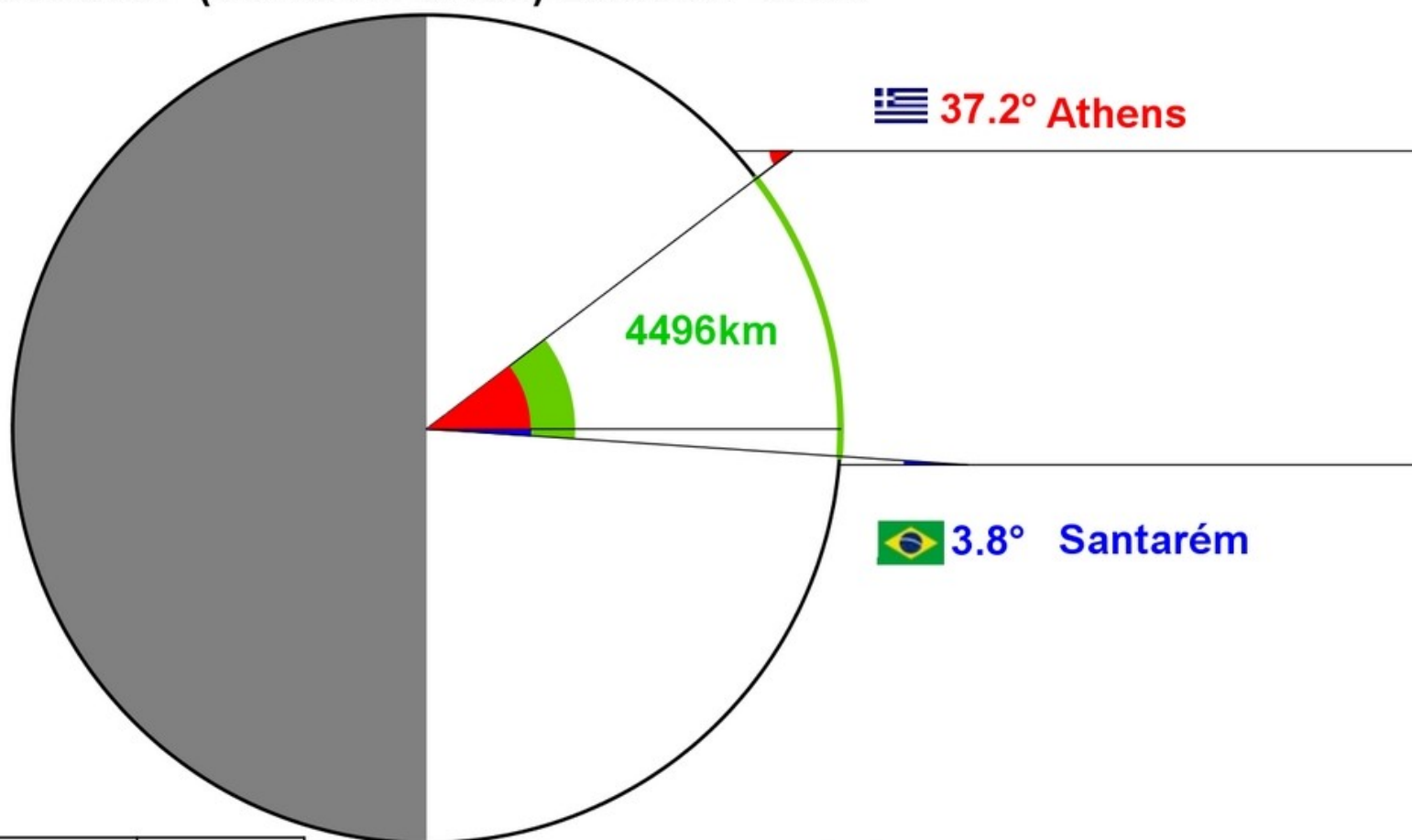


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Santarém	Brazil	Santarém Adventist College	-2.439	-54.699

Date	Gnomon	Shadow	Angle
21 March 2021	8cm	-2cm	-14°
22 March 2021	13.5cm	-0.9cm	-3.8°
25 March 2021	9cm	-1.4cm	-8.8°
27 March 2021	9cm	-0.8cm	-5.1°
28 March 2021	9cm	-1.5cm	-9.5°

22/03/2021 (Athens-Greece) Latitude: 38.027°

22/03/2021 (Santarém-Brazil) Latitude: -2.439°



Distance	Angle
circumference	360°
4496km	37.2°+3.8°

$$\text{circumference} = \frac{360^\circ \times 4496\text{km}}{37.2^\circ + 3.8^\circ} = 39477 \text{ km}$$

