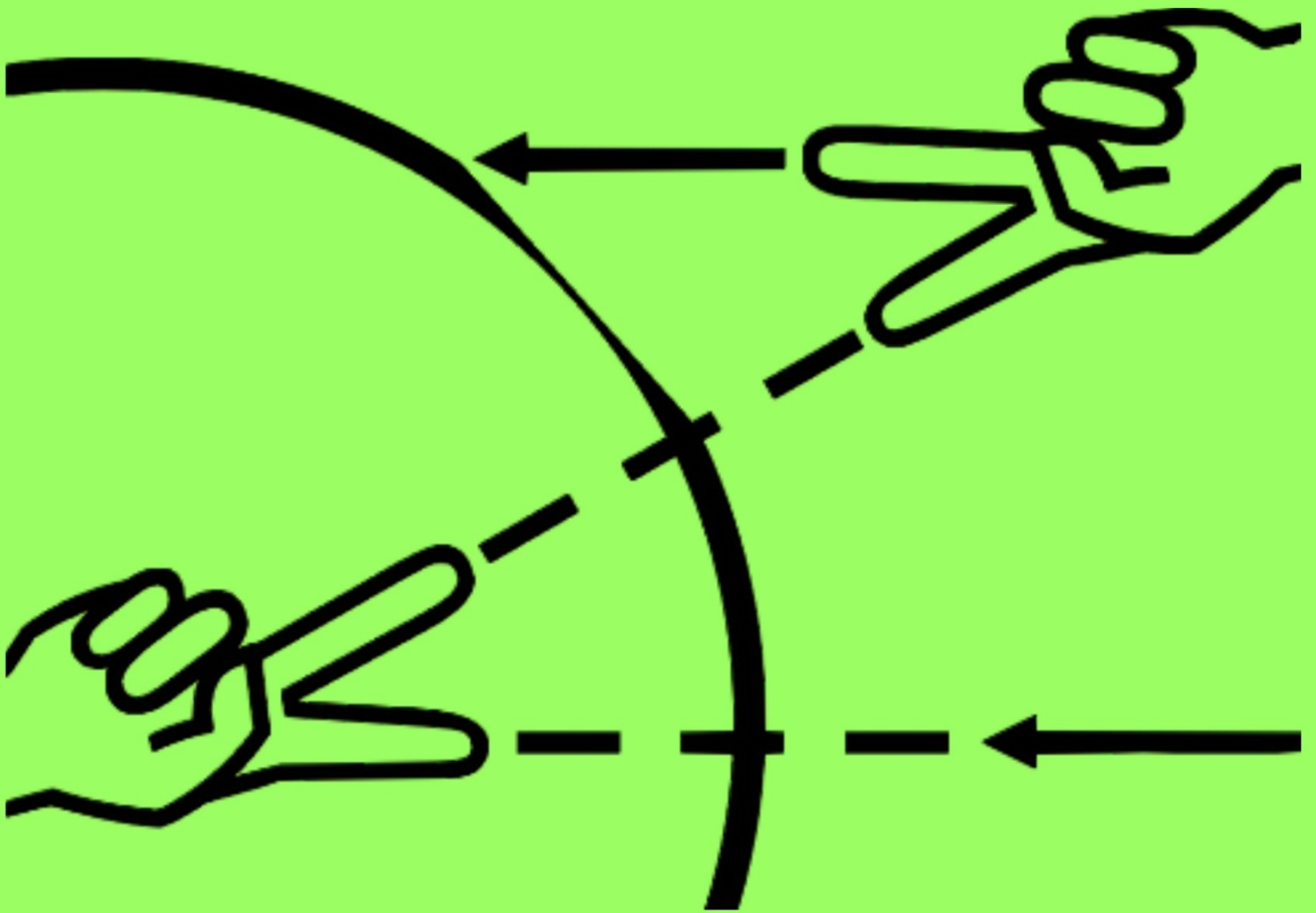


Eratosthenes



4 Continents

11 Countries

17 Schools

155 Measures

4 Continents

11 Countries

17 Schools

155 Measures

ARGENTINA (2)

Alta Gracia, Chivilcoy

BRAZIL (4)

Méier, Rio de Janeiro, Pelotas, Santarém

COLOMBIA (1)

Guarne

FRANCE (1)

Lafrançaise

GERMANY (1)

Garmisch Partenkirchen

GREECE (3)

Aigio, Athens, Ilion

ITALY (1)

Merlara

JORDAN (1)

Irbid

ROMANIA (1)

Busteni

TUNISIA (1)

Bizerte

TURKEY (1)

Istanbul

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
	Athens	Greece	Experimental College Agion Anargyron	38.027	23.726
	Bizerte	Tunisia	Ecole Primaire Raouabi	37.284	9.868
	Busteni	Romania	Colegiul Ion Kalinderu	45.416	25.535
	Chivilcoy	Argentina	Parque Cielos del Sur	-34.911	-60.014
	Garmisch Partenkirchen	Germany	St.-Irmengard-Gymnasium	47.493	11.102
	Guarne	Colombia	Grupo Astrofanáticos	6.274	-76.522
	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
	Méier	Brazil	Escola Municipal Bento Ribeiro	-22.904	-43.280
	Merlara	Italy	Lower Secondary School "Dante Alighieri"	45.166	11.445
	Pelotas	Brazil	Federal University of Pelotas	-31.772	-52.329
	Rio de Janeiro	Brazil	Centro Educacional Nosso Mundo	-22.890	-43.317
	Santarém	Brazil	Santarém Adventist College	-2.439	-54.699

Aigio, Greece

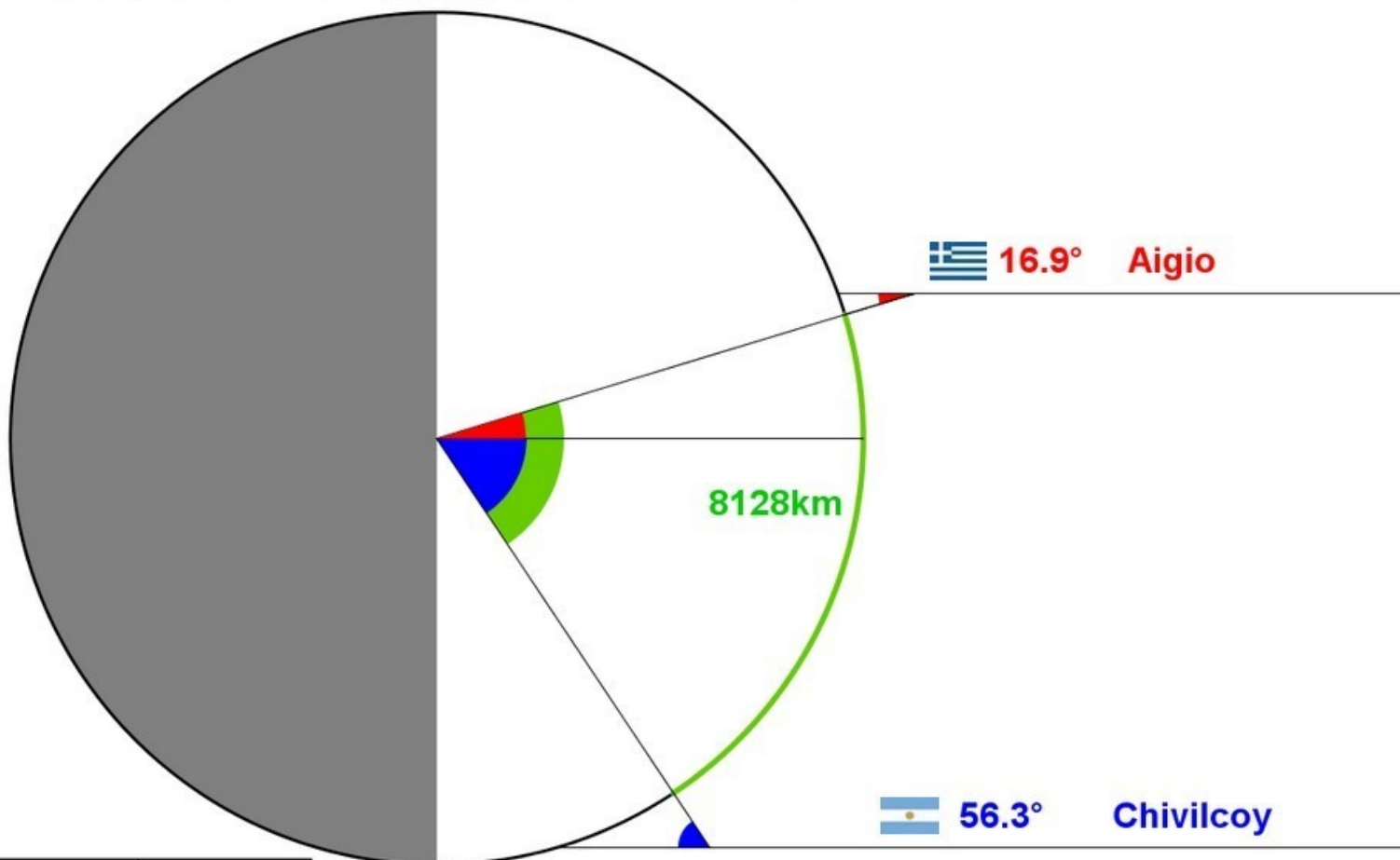


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Aigio	Greece	1st High School of Aigio	38.252	22.079

Date	Gnomon	Shadow	Angle
13 May 2021	30.0cm	10.7cm	-17.7°
20 May 2021	30.0cm	9.8cm	18.1°
27 May 2021	30.0cm	9.1cm	16.9°

27/5/2021 (Aigio-Greece) Latitude: 38.252°

27/05/2021 (Chivilcoy-Argentina) Latitude: -34.911°



Distance	Angle
circumference	360°
8128km	16.9° + 56.3°

$$\text{circumference} = \frac{360^\circ \times 8128\text{km}}{16.9^\circ + 56.3^\circ} = 39974 \text{ km}$$



Alta Gracia, Argentina

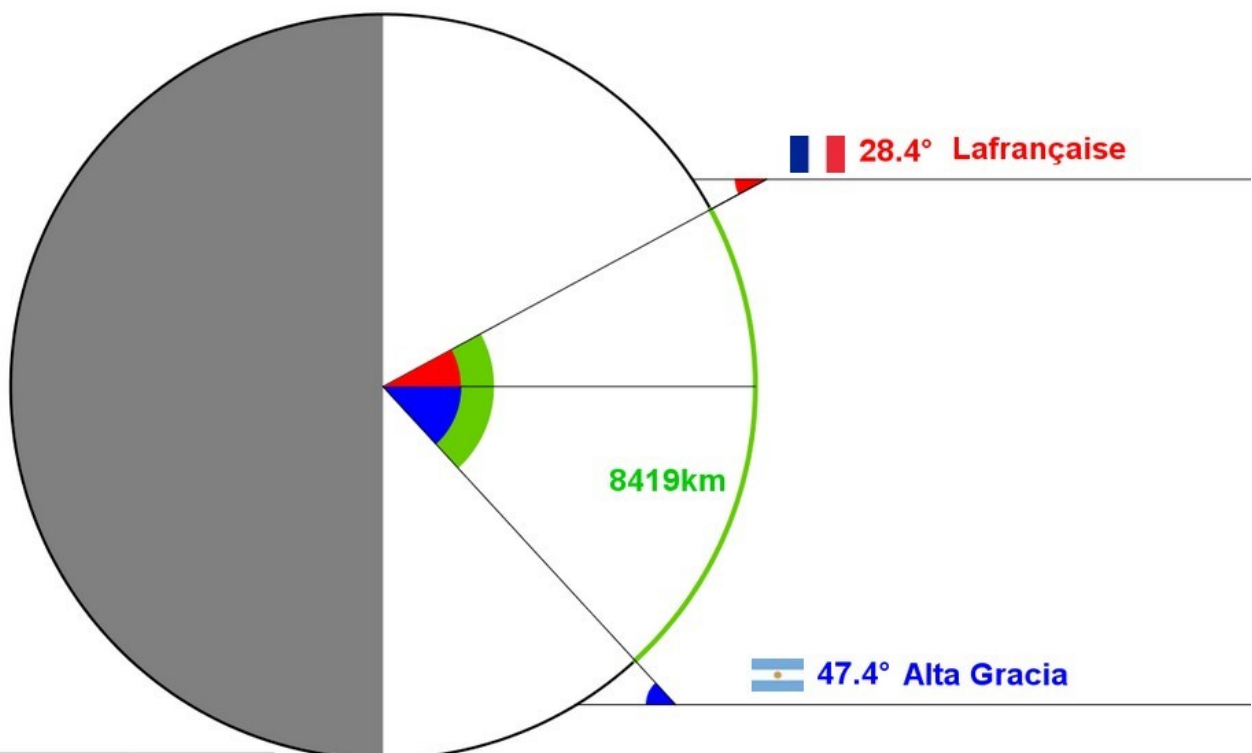


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Alta Gracia	Argentina	Fundación Caminos de Anisacate	-31.659	-64.417

Date	Gnomon	Shadow	Angle
01 May 2021	17.5cm	-18.8cm	-47.1°
02 May 2021	17.5cm	-19.0cm	-47.4°
03 May 2021	17.5cm	-19.2cm	-47.7°
06 May 2021	17.5cm	-19.8cm	-48.5°
13 May 2021	17.5cm	-21.3cm	29.7°
14 May 2021	17.5cm	-21.4cm	-50.7°
15 May 2021	19.0cm	-23.3cm	-50.8°
16 May 2021	19cm	-23.6cm	-51.2°
21 May 2021	19cm	-24.5cm	-52.2°
23 May 2021	19cm	-24.7cm	-52.4°
24 May 2021	19.0cm	-24.7cm	-52.4°
25 May 2021	16.4cm	-22.4cm	-53.8°
26 May 2021	19cm	-24.9cm	-52.7°
27 May 2021	19.0cm	-25.3cm	-53.1°
28 May 2021	19cm	-25.3cm	-53.1°
29 May 2021	19cm	-25.4cm	-53.2°

02/05/2021 (Lafrançaise-France) Latitude: 44.127°

02/05/2021 (Alta Gracia-Argentina) Latitude: -31.656°



Distance	Angle
circumference	360°
8419km	28.4° + 47.4°

$$\text{circumference} = \frac{360^\circ \times 8419\text{km}}{28.4^\circ + 47.4^\circ} = 39985 \text{ km}$$



Athens, Greece

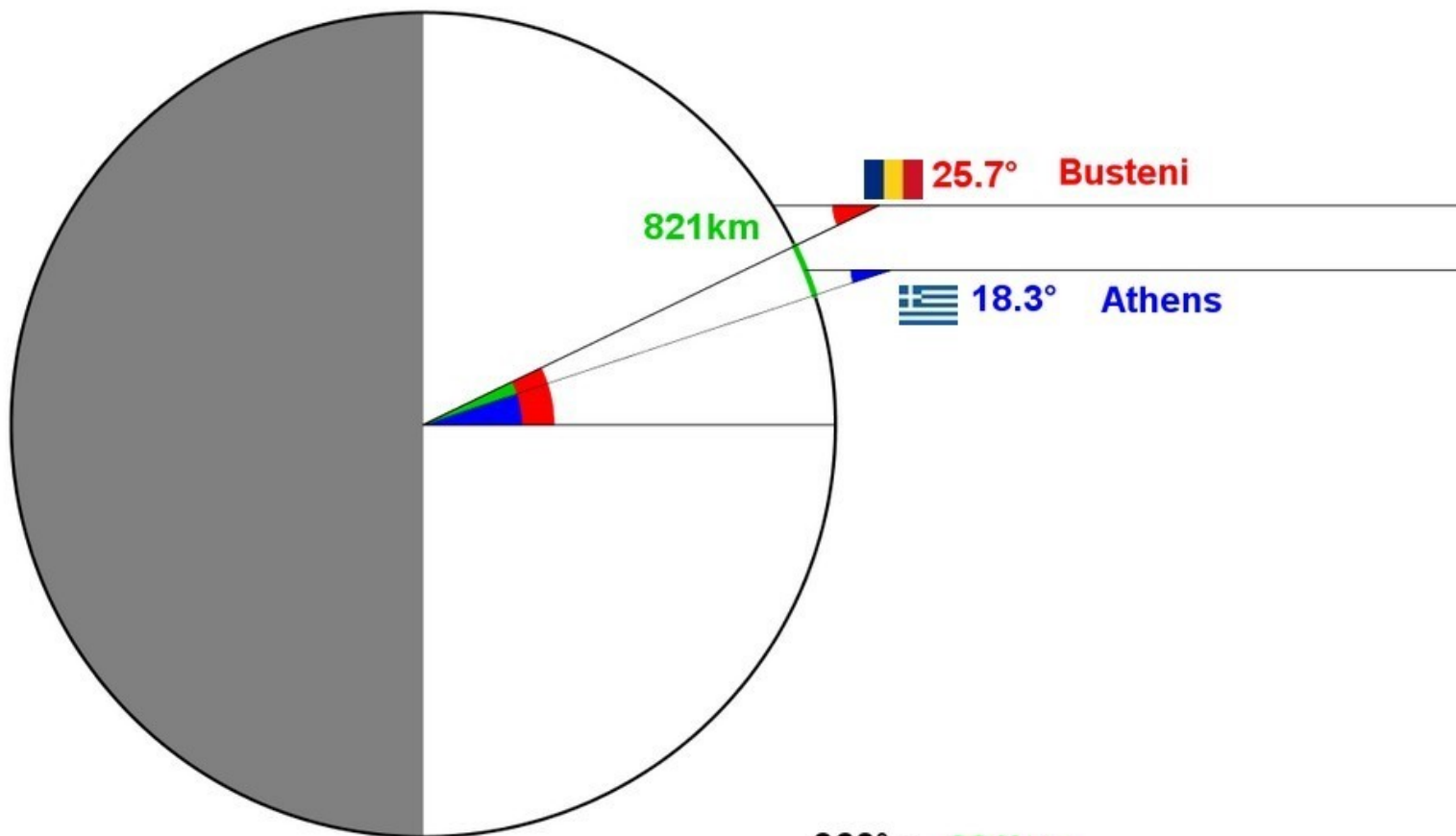


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Athens	Greece	Experimental College Agion Anargyron	38.027	23.726

Date	Gnomon	Shadow	Angle
05 May 2021	28.0cm	11.4cm	22.2°
10 May 2021	247.0cm	88.0cm	19.6°
11 May 2021	14.5cm	5.5cm	20.8°
17 May 2021	245.0cm	81.0cm	18.3°
24 May 2021	8cm	2.4cm	16.7°
31 May 2021	15cm	4.2cm	15.6°

17/05/2021 (Busteni-Romania) Latitude: 45.416°

17/05/2021 (Athens-Greece) Latitude: 38.027°




Distance	Angle
circumference	360°
821km	25.7° - 18.3°

$$\text{circumference} = \frac{360^\circ \times 821\text{km}}{25.7^\circ - 18.3^\circ} = 39941 \text{ km}$$



Bizerte, Tunisia

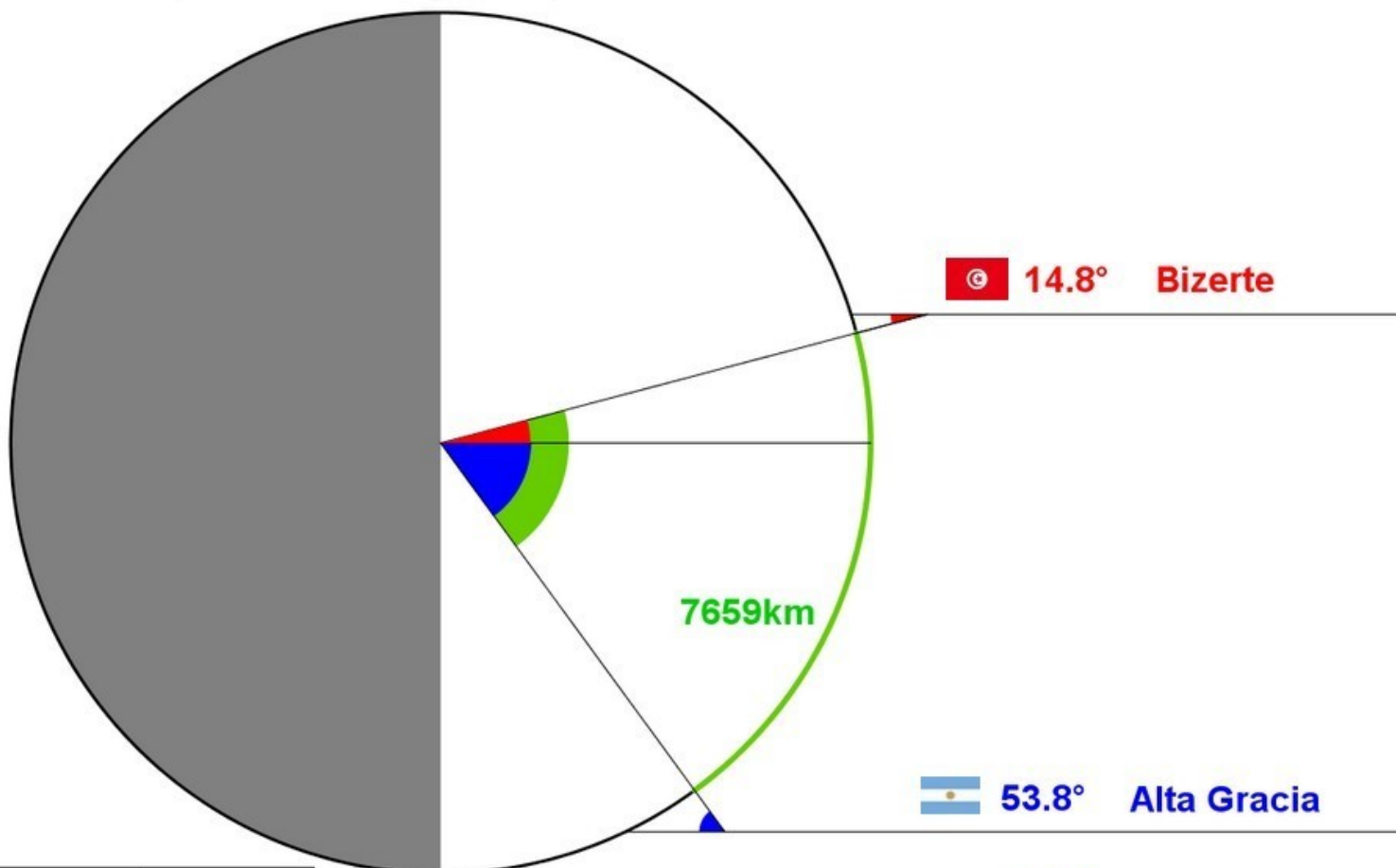


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Bizerte	Tunisia	Ecole Primaire Raouabi	37.284	9.868

Date	Gnomon	Shadow	Angle
10 May 2021	17.0cm	5.5cm	17.9°
18 May 2021	21.5cm	7.0cm	18.0°
19 May 2021	17cm	5cm	16.4°
24 May 2021	15.8cm	4.4cm	15.6°
25 May 2021	17cm	4.5cm	14.8°
26 May 2021	32.5cm	9.0cm	15.5°

25/05/2021 (Bizerte-Tunisia) Latitude: 37.284°

25/05/2021 (Alta Gracia-Argentina) Latitude: -31.656°




Distance	Angle
circumference	360°
7659km	14.8° + 53.8°

$$\text{circumference} = \frac{360^\circ \times 7659\text{km}}{14.8^\circ + 53.8^\circ} = 40193 \text{ km}$$



Busteni, Romania

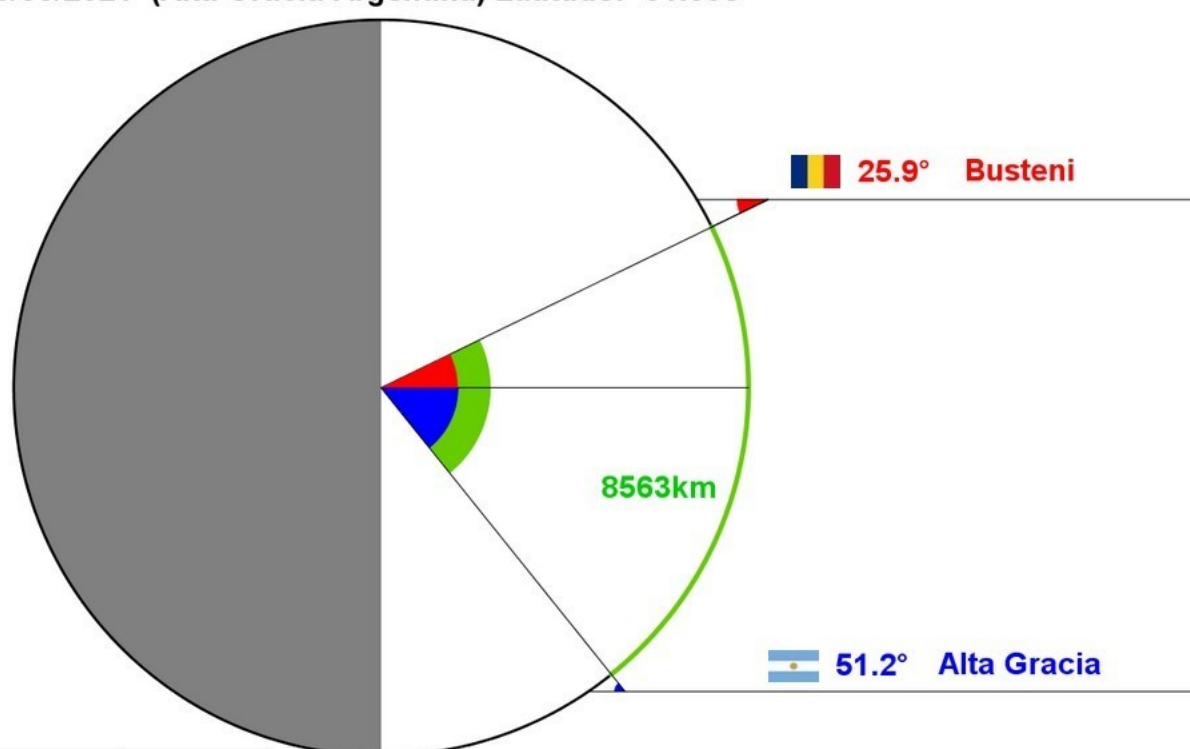


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Busteni	Romania	Colegiul Ion Kalinderu	45.416	25.535

Date	Gnomon	Shadow	Angle
01 May 2021	17.4cm	10.0cm	29.9°
02 May 2021	100.0cm	56.8cm	29.6°
04 May 2021	100.0cm	55.5cm	29.0°
05 May 2021	73.0cm	40.0cm	28.7°
06 May 2021	74.0cm	40.1cm	28.5°
07 May 2021	31.7cm	17.0cm	28.2°
09 May 2021	114.6cm	60.0cm	27.6°
10 May 2021	251.0cm	130.0cm	27.4°
11 May 2021	123.0cm	63.0cm	27.1°
14 May 2021	16.0cm	7.9cm	26.3°
16 May 2021	51cm	24.8cm	25.9°
17 May 2021	51.7cm	24.9cm	25.7°
20 May 2021	50.0cm	23.4cm	25.1°
21 May 2021	37.5cm	17.4cm	24.9°
22 May 2021	87cm	40cm	24.7°
23 May 2021	87.7cm	40.0cm	24.5°
24 May 2021	95cm	43cm	24.4°
25 May 2021	122.5cm	55.0cm	24.2°

16/05/2021 (Busteni-Romania) Latitude: 45.416°

16/05/2021 (Alta Gracia-Argentina) Latitude: -31.656°

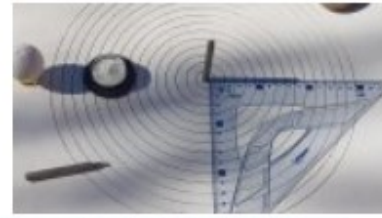



Distance	Angle
circumference	360°
8563km	25.9° + 51.2°

$$\text{circumference} = \frac{360^\circ \times 8563\text{km}}{25.9^\circ + 51.2^\circ} = 39983 \text{ km}$$



Chivilcoy, Argentina

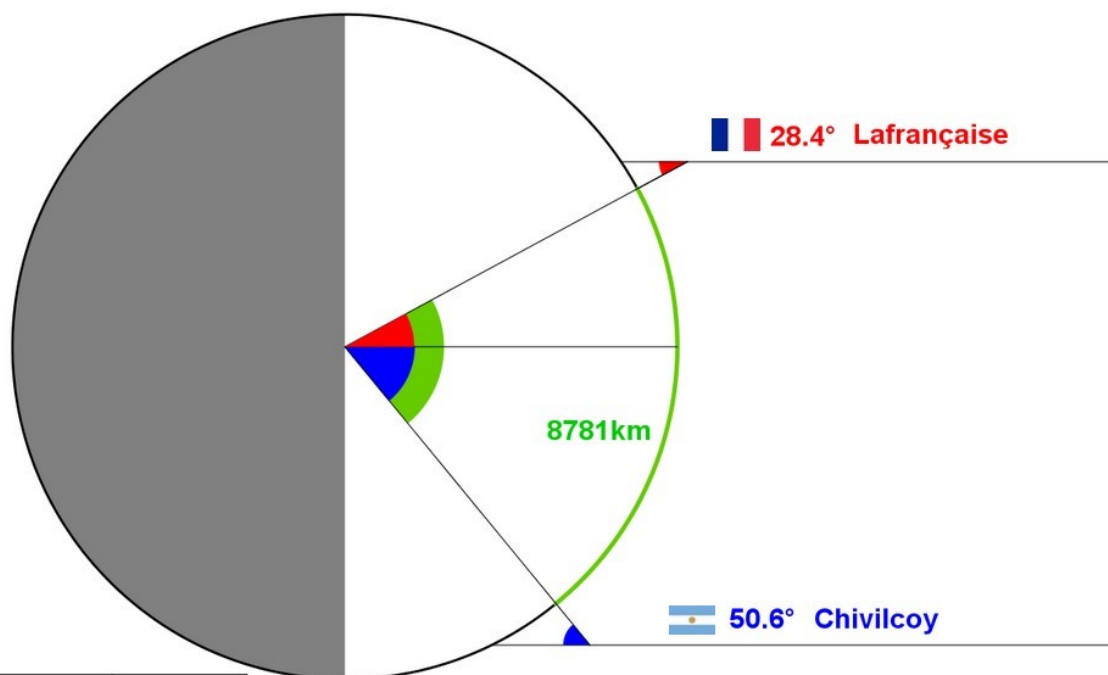


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Chivilcoy	Argentina	Parque Cielos del Sur	-34.911	-60.014

Date	Gnomon	Shadow	Angle
01 May 2021	12.0cm	-14.4cm	-50.2°
02 May 2021	12.0cm	-14.6cm	-50.6°
04 May 2021	12.0cm	-14.8cm	-51.0°
05 May 2021	12.0cm	-15.0cm	-51.3°
06 May 2021	12.0cm	-15.1cm	-51.5°
07 May 2021	12.0cm	-15.3cm	-51.9°
08 May 2021	12.0cm	-15.5cm	-52.3°
09 May 2021	12.0cm	-15.6cm	-52.4°
10 May 2021	12.0cm	-15.7cm	-52.6°
11 May 2021	12.0cm	-15.9cm	-53.0°
12 May 2021	12.0cm	-16.0cm	-53.1°
13 May 2021	12.0cm	-16.2cm	27.6°
14 May 2021	12.0cm	-16.3cm	-53.6°
15 May 2021	12cm	-16.5cm	-54°
17 May 2021	12.0cm	-16.8cm	-54.5°
18 May 2021	12.0cm	-16.9cm	-54.6°
19 May 2021	12.0cm	-17.0cm	-54.8°
25 May 2021	6cm	-8.9cm	-56°
27 May 2021	6cm	-9cm	-56.3°
29 May 2021	6.00cm	-9.1cm	-56.6°

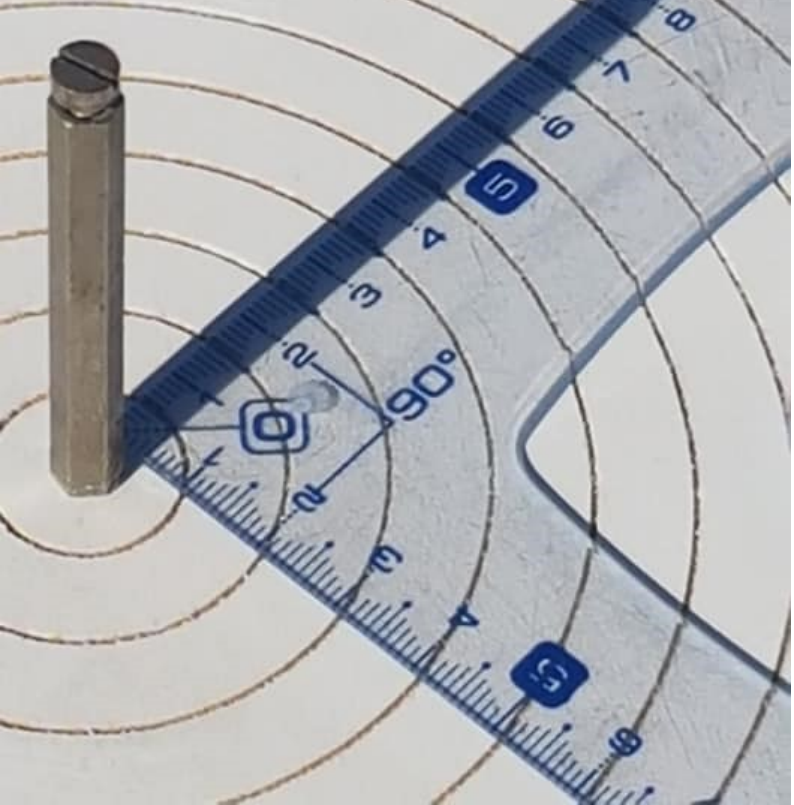
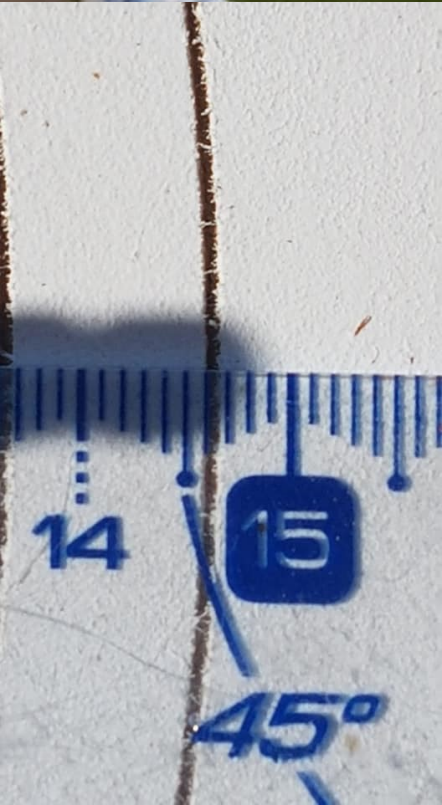
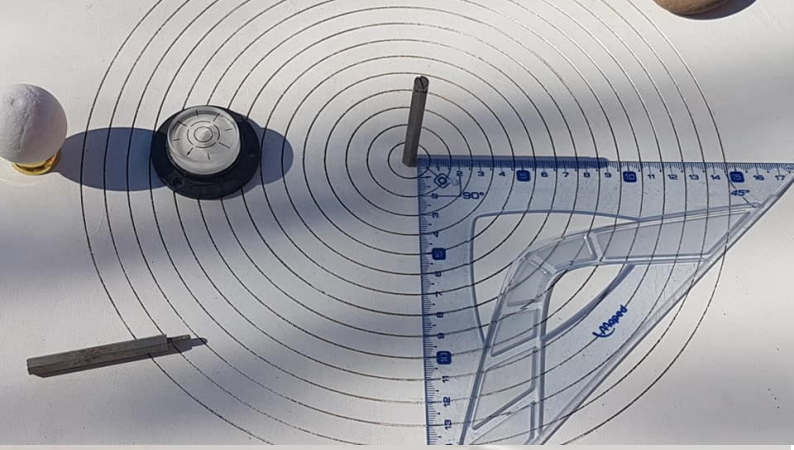
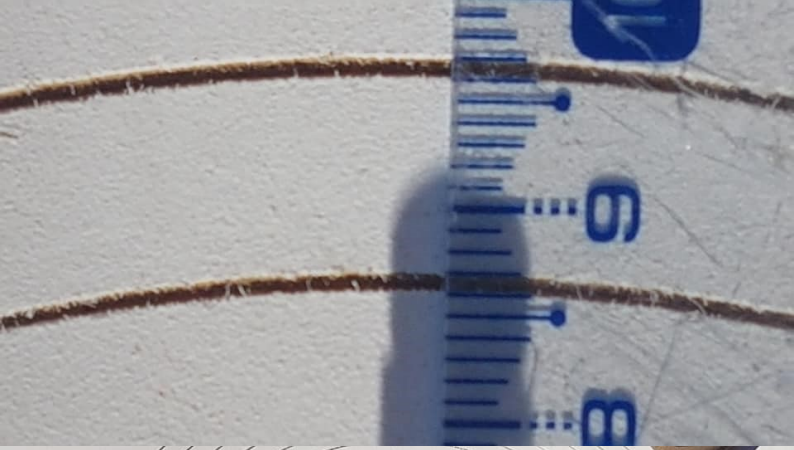
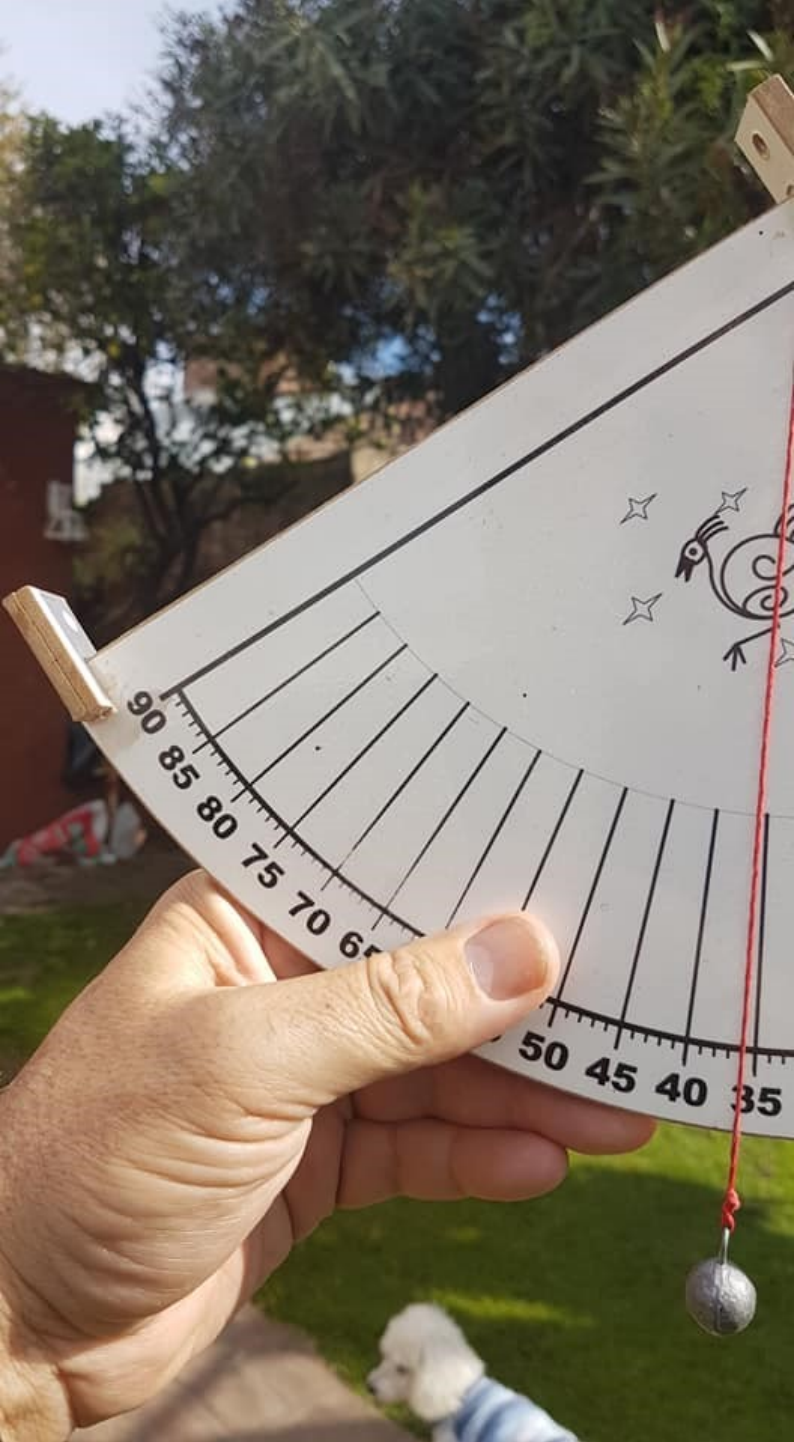
02/05/2021 (Lafrançaise-France) Latitude: 44.127°

02/05/2021 (Chivilcoy-Argentina) Latitude: -34.911°




Distance	Angle
circumference	360°
8781km	28.4° + 50.6°

$$\text{circumference} = \frac{360^\circ \times 8781\text{km}}{28.4^\circ + 50.6^\circ} = 40015 \text{ km}$$



Garmisch Partenkirchen, Germany

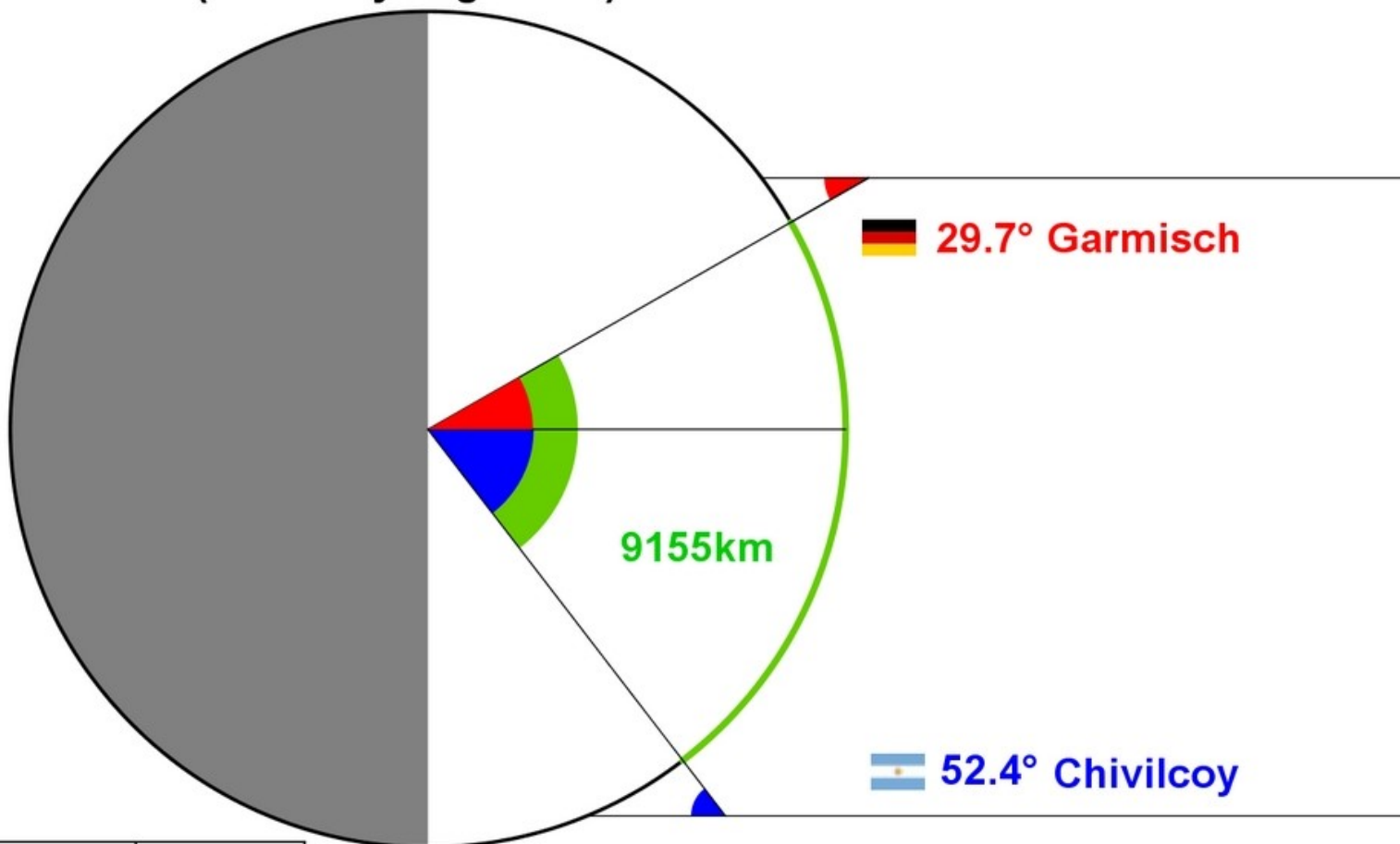


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Garmisch Partenkirchen	Germany	St.-Irmengard-Gymnasium	47.493	11.102

Date	Gnomon	Shadow	Angle
09 May 2021	10.0cm	5.7cm	29.7°

09/05/2021 (Garmisch-Germany) Latitude: 47.493°

09/05/2021 (Chivilcoy-Argentina) Latitude: -34.911°



Distance	Angle
circumference	360°
9155km	29.7° + 52.4°

$$\text{circumference} = \frac{360^\circ \times 9155\text{km}}{29.7^\circ + 52.4^\circ} = 40144 \text{ km}$$



Guarne, Colombia

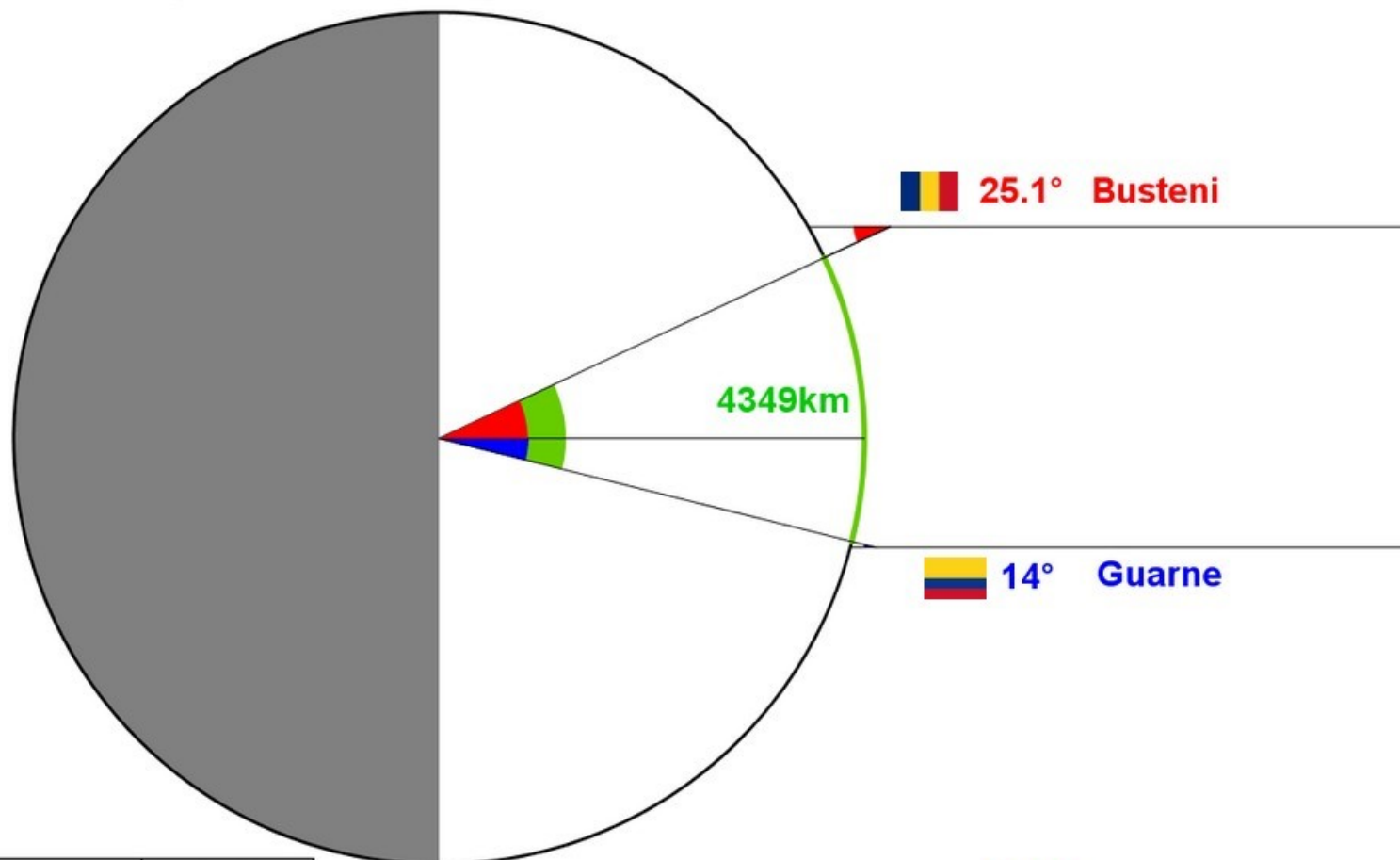


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Guarne	Colombia	Grupo Astrofanáticos	6.274	-76.522

Date	Gnomon	Shadow	Angle
03 May 2021	7.8cm	-1.3cm	-9.5°
05 May 2021	7.8cm	-1.4cm	-10.2°
12 May 2021	7.8cm	-1.7cm	-12.3°
10 May 2021	9.0cm	-1.8cm	-11.3°
11 May 2021	7.8cm	-1.6cm	-11.6°
19 May 2021	7.8cm	-1.9cm	-13.7°
20 May 2021	12cm	-3cm	-14°
21 May 2021	12cm	-3cm	-14°
25 May 2021	12cm	-3.2cm	-14.9°
31 May 2021	12cm	-3.4cm	-15.8°

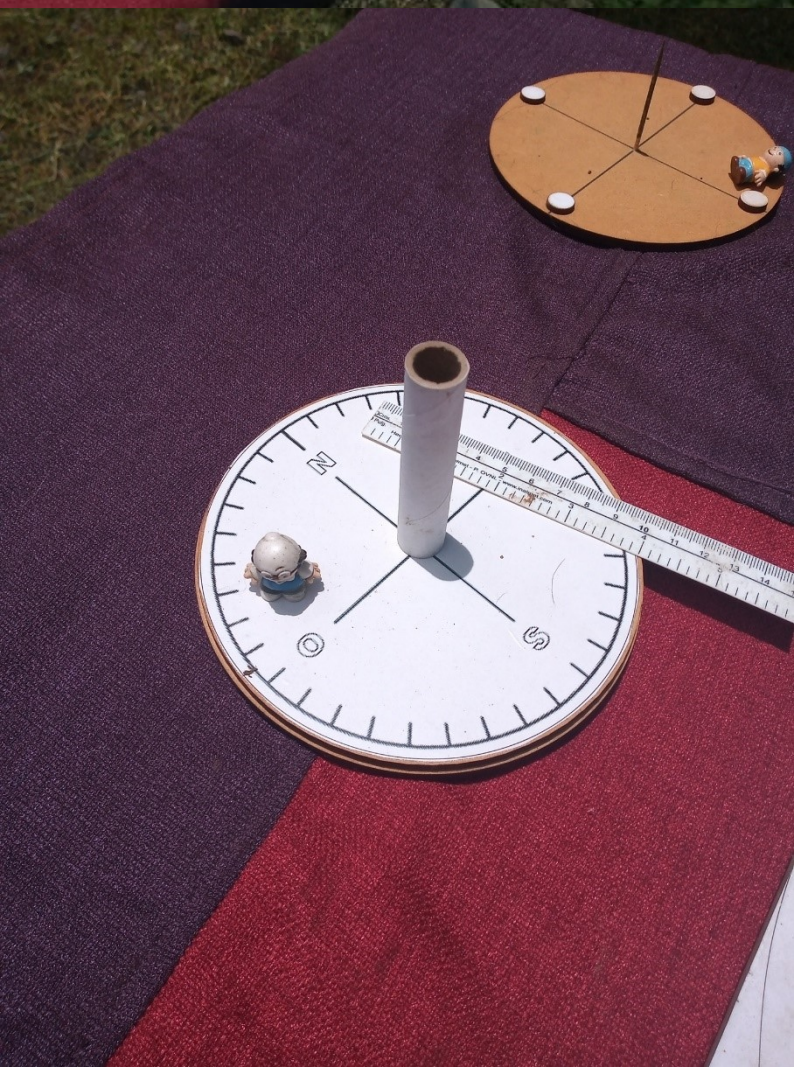
20/05/2021 (Busteni-Romania) Latitude: 45.416°

20/05/2021 (Guarne-Colombia) Latitude: 6.274°



Distance	Angle
circumference	360°
4349km	25.1° + 14°

$$\text{circumference} = \frac{360^\circ \times 4349\text{km}}{25.1^\circ + 14^\circ} = 40042 \text{ km}$$



Ilion, Greece

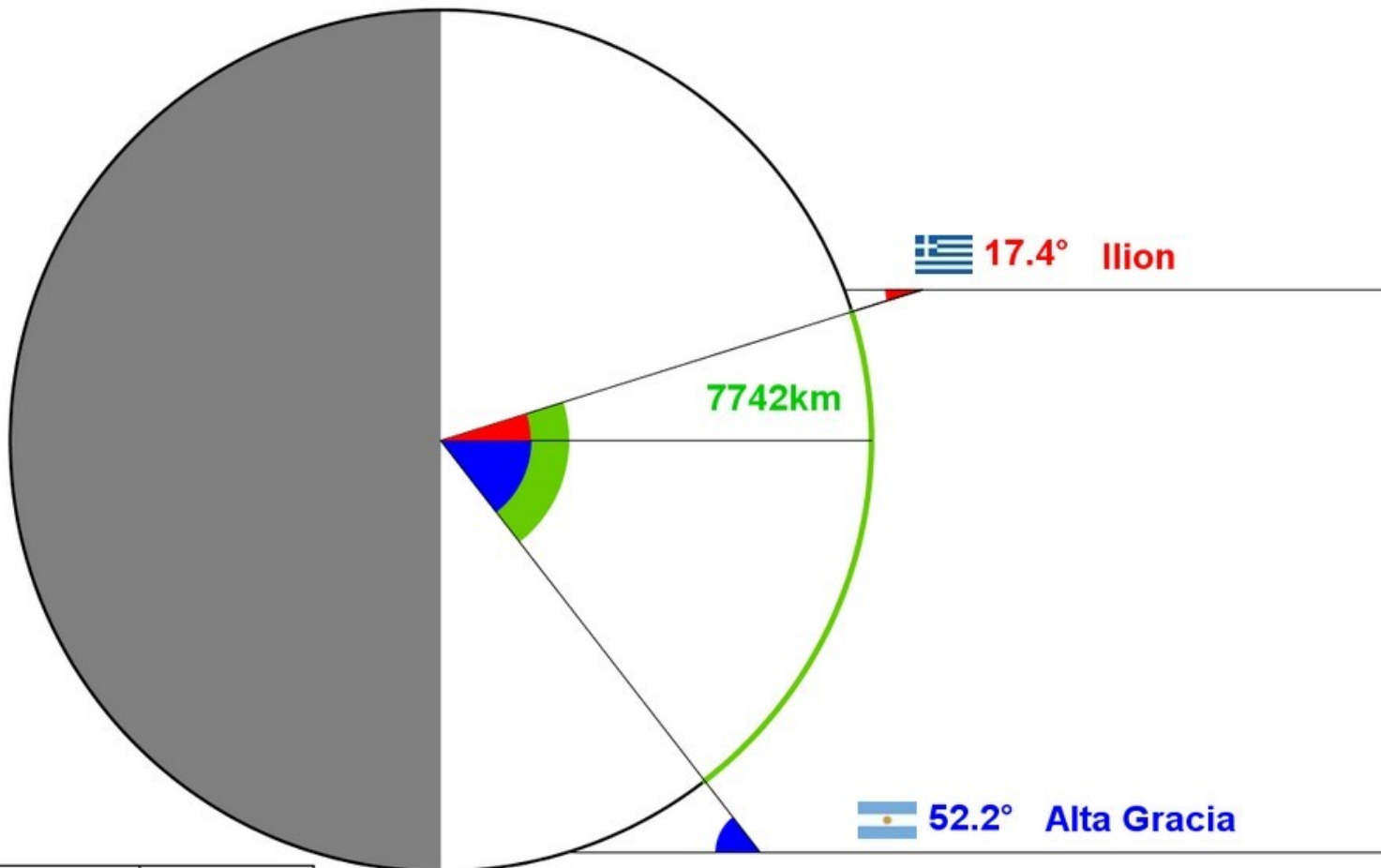


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Ilion	Greece	11th JuniorHigh School of Ilion	38.033	23.697

Date	Gnomon	Shadow	Angle
10 May 2021	40.0cm	14.7cm	20.2°
17 May 2021	40.0cm	13.0cm	18.0°
20 May 2021	40.0cm	13cm	18.0°
21 May 2021	40cm	12.5cm	17.4°
27 May 2021	40.0cm	11.8cm	16.4°
31 May 2021	40.0cm	11.4cm	15.9°

21/05/2021 (Ilion-Greece) Latitude: 38.033°

21/05/2021 (Alta Gracia-Argentina) Latitude: -31.656°



Distance	Angle
circumference	360°
7742km	17.4° + 52.2°

$$\text{circumference} = \frac{360^\circ \times 7742\text{km}}{17.4^\circ + 52.2^\circ} = 40045 \text{ km}$$



Irbid, Jordan

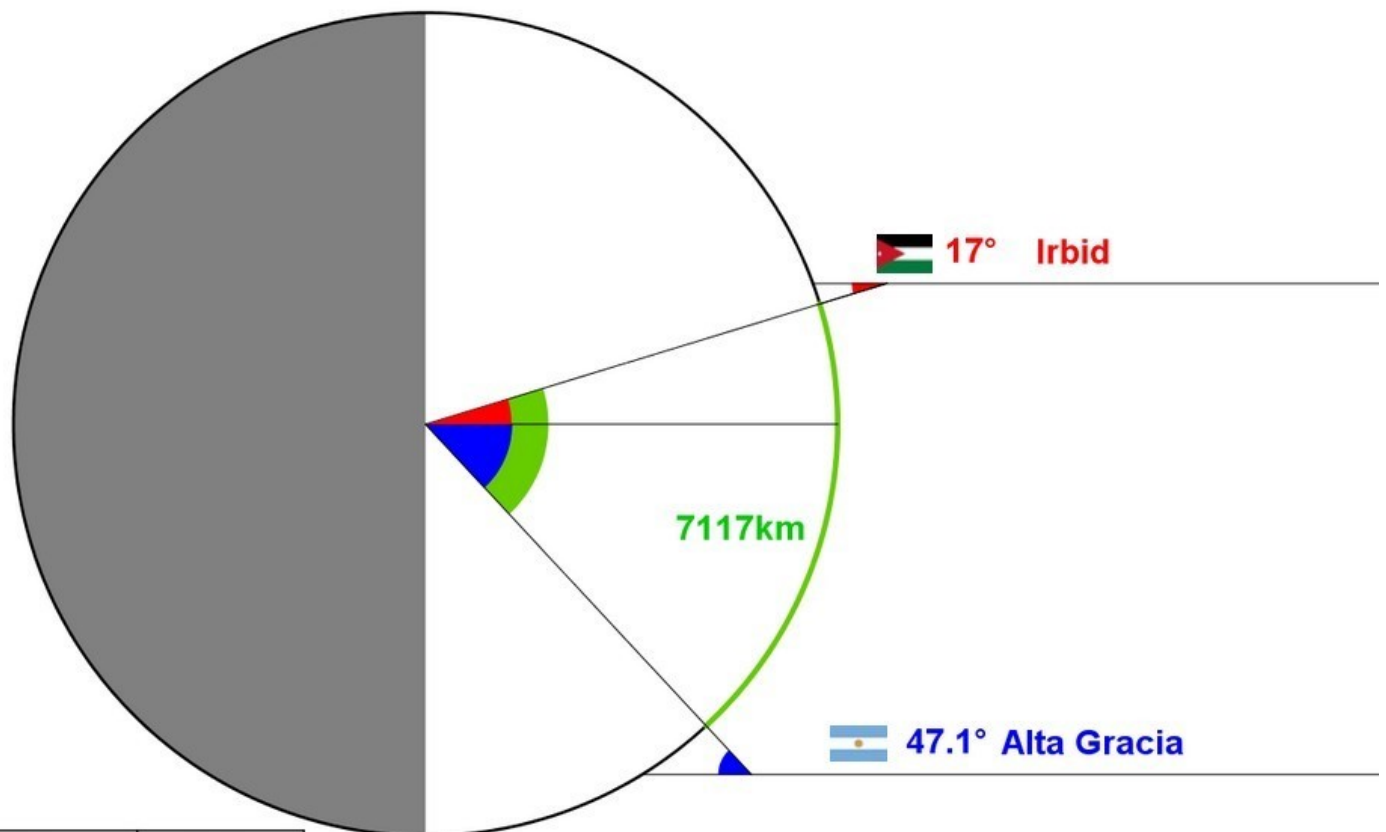


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Irbid	Jordan	Mashar'eh Military School	32.405	35.588

Date	Gnomon	Shadow	Angle
01 May 2021	29.5cm	9.0cm	17.0°
06 May 2021	29.0cm	8.0cm	15.4°
07 May 2021	20.0cm	5.4cm	15.1°
11 May 2021	15.5cm	3.9cm	14.1°
15 May 2021	38.2cm	8.9cm	13.1°
16 May 2021	10.7cm	2.4cm	12.6°
18 May 2021	17.0cm	3.8cm	12.6°
20 May 2021	18cm	3.9cm	12.2°
22 May 2021	38cm	7.9cm	11.7°
23 May 2021	20.6cm	4.2cm	11.5°
26 May 2021	20cm	3.9cm	11°
27 May 2021	32cm	6.1cm	10.8°

01/05/2021 (Irbid-Jordan) Latitude: 32.405°

01/05/2021 (Alta Gracia-Argentina) Latitude: -31.656°



Distance	Angle
circumference	360°
7117km	17° + 47.1°

$$\text{circumference} = \frac{360^\circ \times 7117\text{km}}{17^\circ + 47.1^\circ} = 39971 \text{ km}$$



Istanbul, Turkey

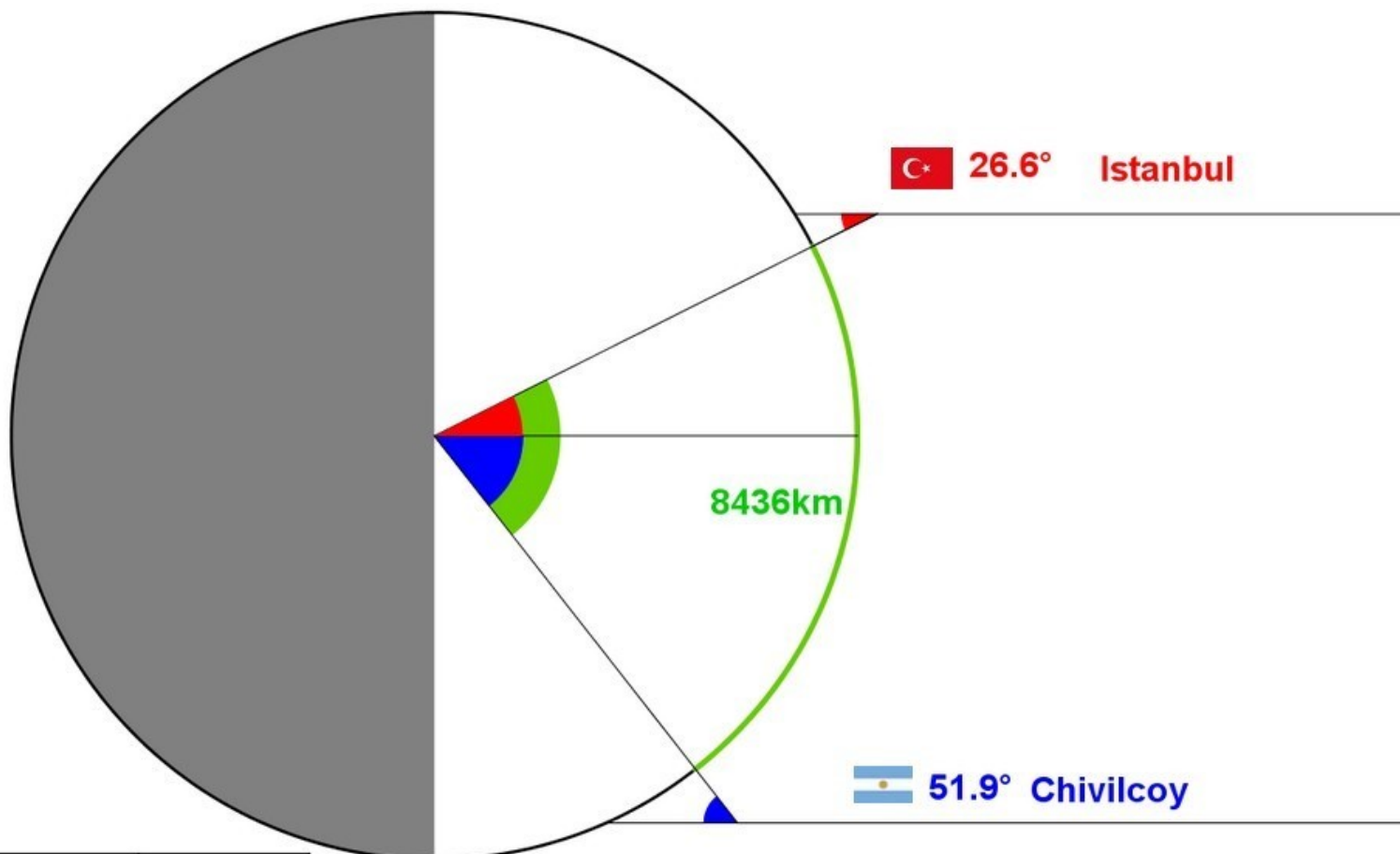


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Istanbul	Turkey	Zübeyde Hanım Secondary school	41.005	28.976

Date	Gnomon	Shadow	Angle
07 May 2021	21.0cm	10.5cm	26.6°
14 May 2021	11.5cm	6.5cm	29.5°

07/05/2021 (Istanbul-Turkey) Latitude: 41.024°

07/05/2021 (Chivilcoy-Argentina) Latitude: -34.911°




Distance	Angle
circumference	360°
8436km	26.6° + 51.9°

$$\text{circumference} = \frac{360^\circ \times 8436\text{km}}{26.6^\circ + 51.9^\circ} = 38687 \text{ km}$$



Lafrançaise, France

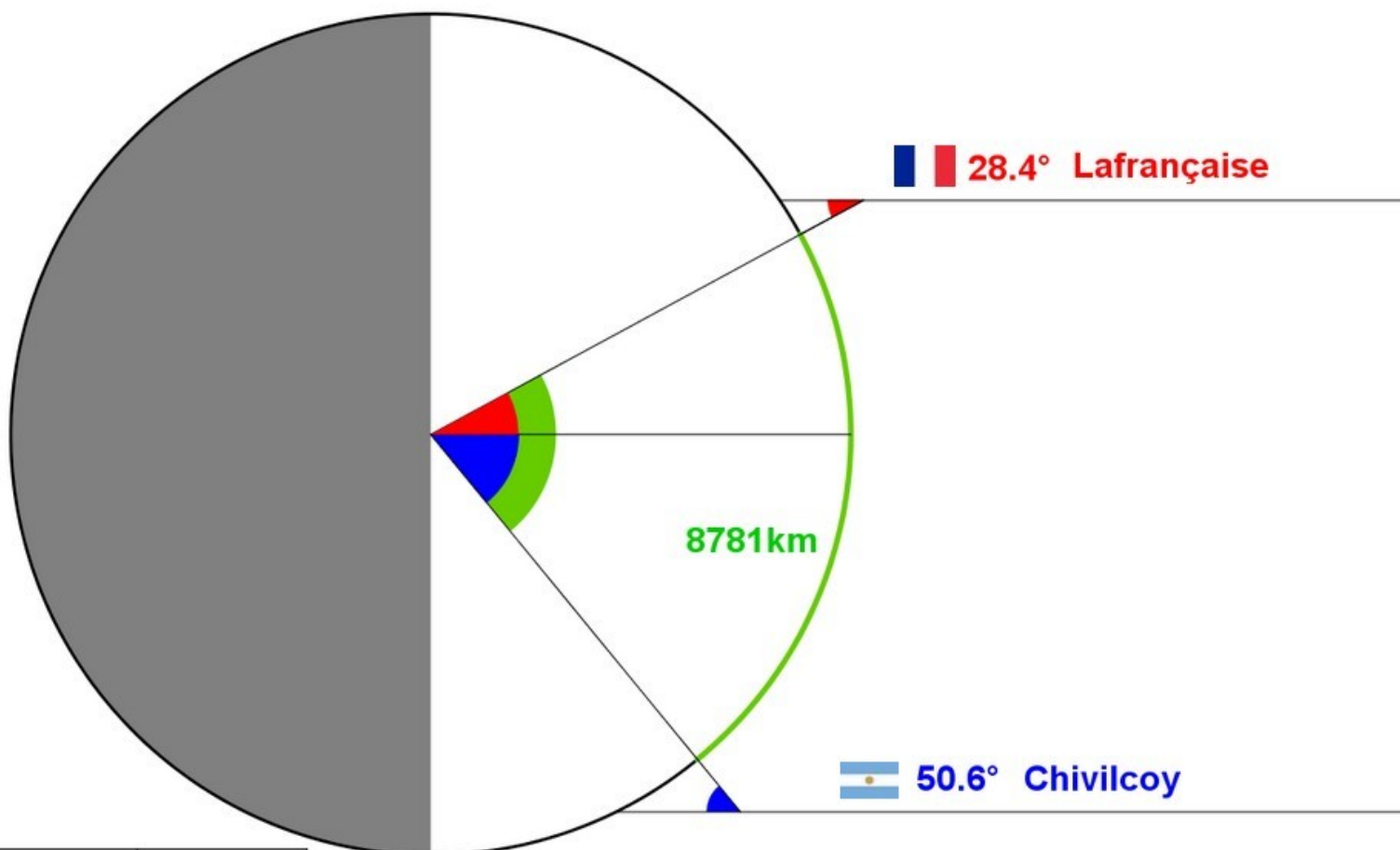


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Lafrançaise	France	Collège Antonin Perbosc	44.127	1.237

Date	Gnomon	Shadow	Angle
02 May 2021	25.0cm	13.5cm	28.4°
03 May 2021	200.0cm	106.5cm	28.0°
04 May 2021	100.0cm	55.0cm	28.8°
06 May 2021	100.0cm	51.5cm	27.2°
11 May 2021	100.0cm	49.0cm	26.1°
18 May 2021	100.0cm	45cm	24.2°
20 May 2021	100.0cm	45.0cm	24.2°
21 May 2021	100cm	44.5cm	24°
25 May 2021	100.0cm	43.0cm	23.3°
27 May 2021	100.0cm	42.0cm	22.8°

02/05/2021 (Lafrançaise-France) Latitude: 44.127°

02/05/2021 (Chivilcoy-Argentina) Latitude: -34.911°




Distance	Angle
circumference	360°
8781km	28.4° + 50.6°

$$\text{circumference} = \frac{360^\circ \times 8781\text{km}}{28.4^\circ + 50.6^\circ} = 40015 \text{ km}$$



Méier, Brazil

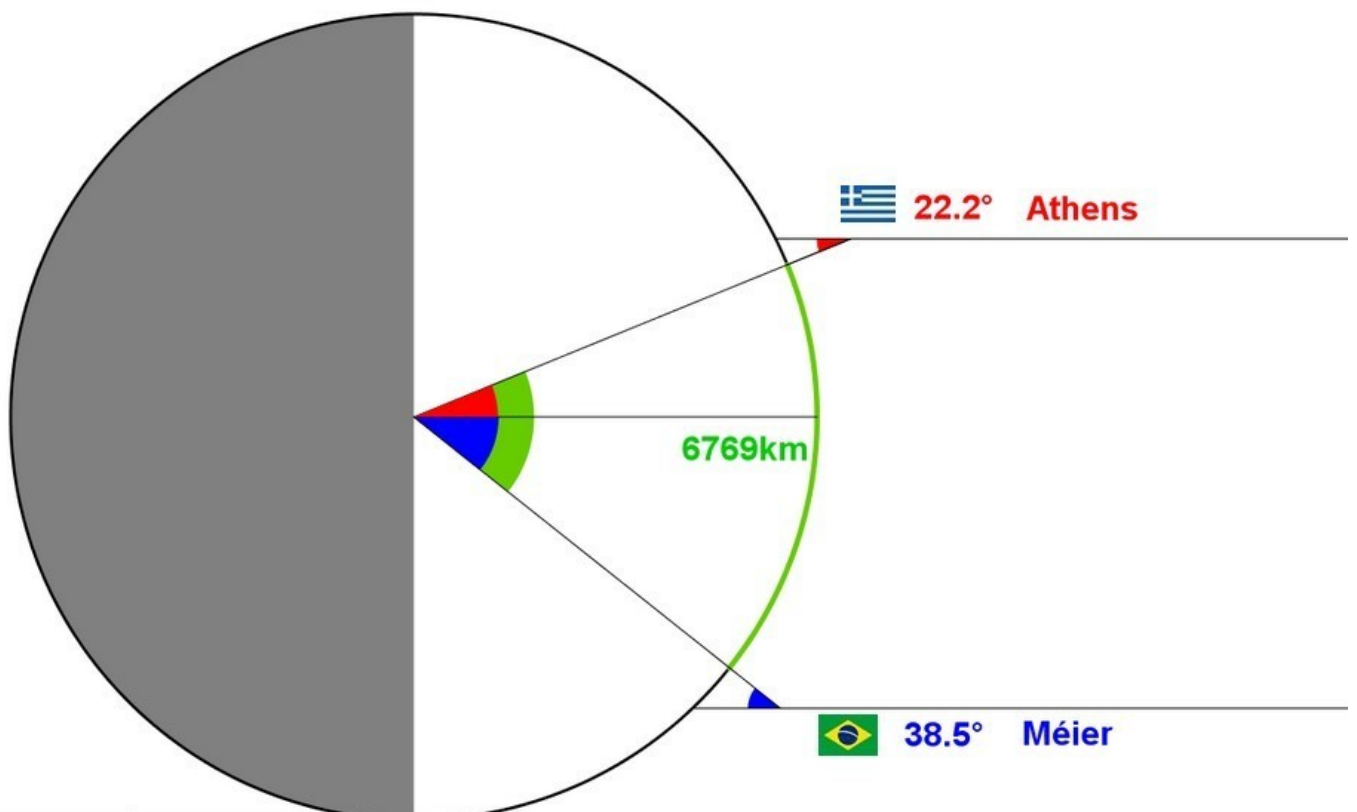


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Méier	Brazil	Escola Municipal Bento Ribeiro	-22.904	-43.280

Date	Gnomon	Shadow	Angle
02 May 2021	10.0cm	-7.0cm	-35.0°
03 May 2021	20.0cm	-13.0cm	-33.0°
04 May 2021	54.0cm	-43.0cm	-38.5°
05 May 2021	54.0cm	-43.0cm	-38.5°
06 May 2021	54.0cm	-43.0cm	-38.5°
10 May 2021	20.0cm	-12.0cm	-31.0°
12 May 2021	54.0cm	-43.0cm	-38.5°
15 May 2021	54.0cm	-47.0cm	-41.0°
21 May 2021	54cm	-39cm	-35.8°
22 May 2021	54cm	-49cm	-42.2°
25 May 2021	54.0cm	-47.0cm	-41.0°
28 May 2021	54cm	-50cm	-42.8°
29 May 2021	54.00cm	-50cm	-42.8°

05/05/2021 (Athens-Greece) Latitude: 38.027°

05/05/2021 (Méier-Brazil) Latitude: -22.904°



Distance	Angle
circumference	360°
6769km	22.2° + 38.5°

$$\text{circumference} = \frac{360^\circ \times 6769\text{km}}{22.2^\circ + 38.5^\circ} = 40146 \text{ km}$$



Merlara, Italy

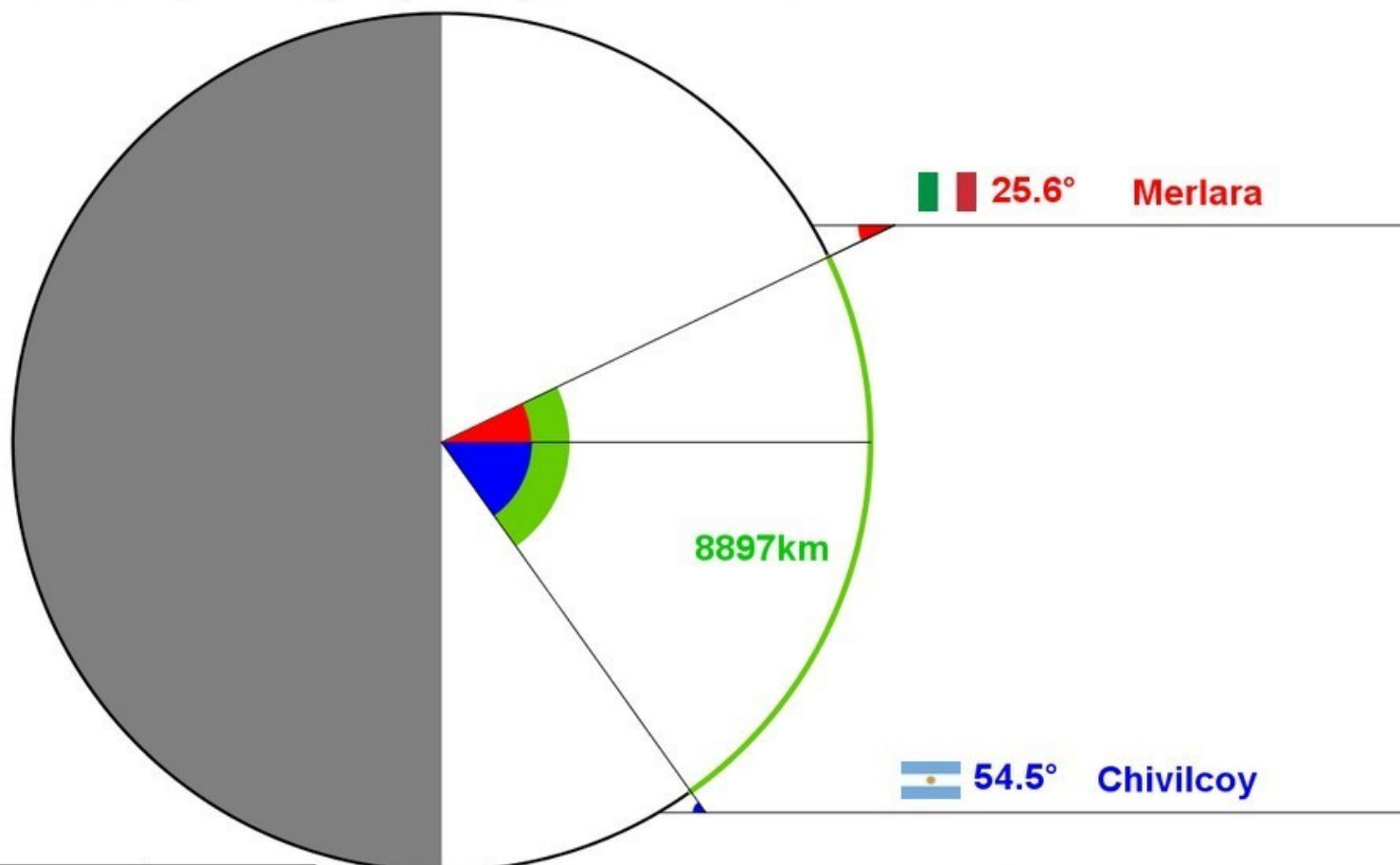


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Merlara	Italy	Lower Secondary School "Dante Alighieri"	45.166	11.445

Date	Gnomon	Shadow	Angle
03 May 2021	100.0cm	53.0cm	27.9°
10 May 2021	100.0cm	48.0cm	25.6°
17 May 2021	100.0cm	48.0cm	25.6°

17/05/2021 (Merlara-Italy) Latitude: 45.166°

17/05/2021 (Chivilcoy-Argentina) Latitude: -34.911°




Distance	Angle
circumference	360°
8897km	25.6° + 54.5°

$$\text{circumference} = \frac{360^\circ \times 8897\text{km}}{25.6^\circ + 54.5^\circ} = 39987 \text{ km}$$



Pelotas, Brazil

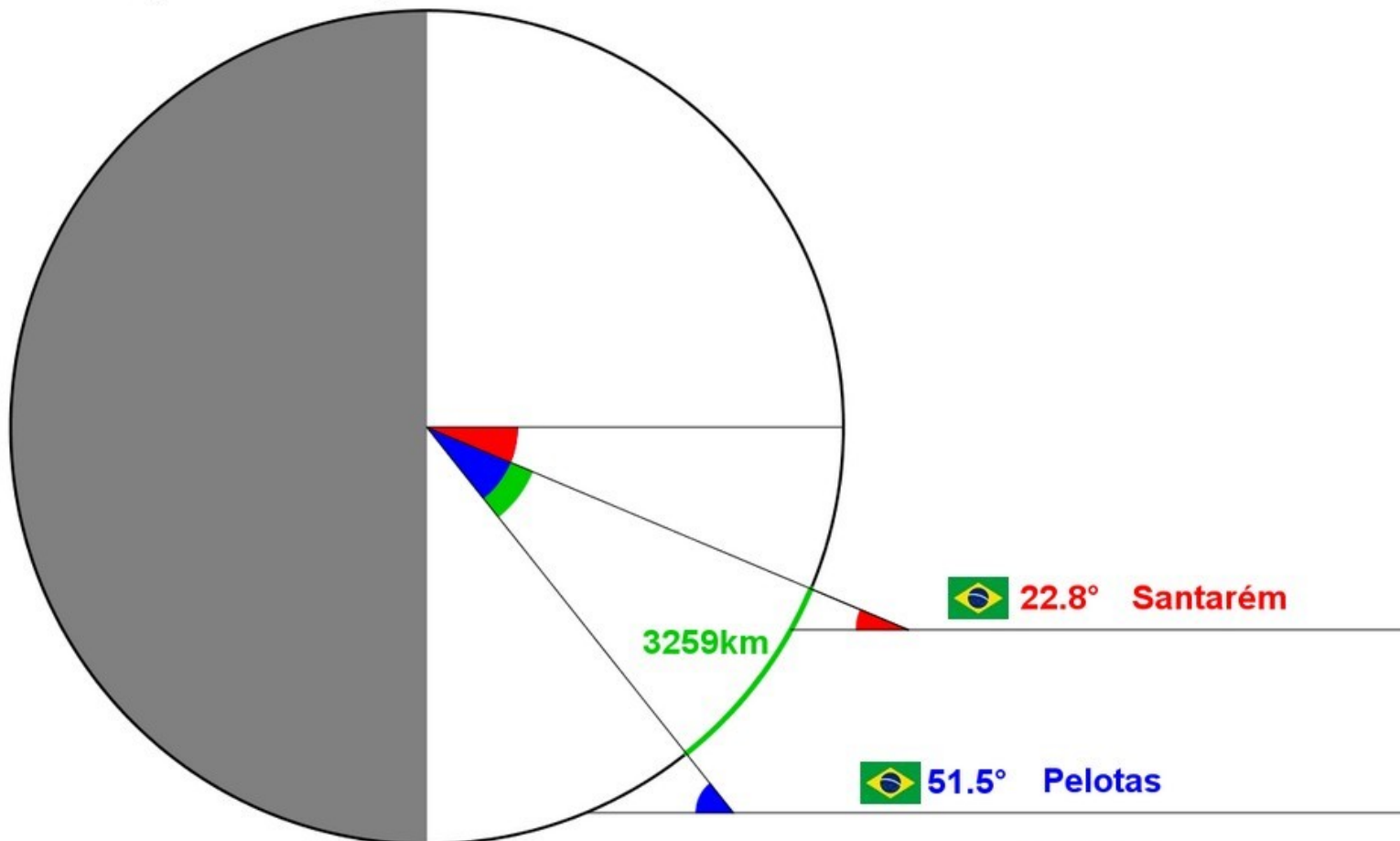


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Pelotas	Brazil	Federal University of Pelotas	-31.772	-52.329

Date	Gnomon	Shadow	Angle
07 May 2021	13.5cm	-17.0cm	-51.5°
29 May 2021	26.5cm	-37cm	-54.4°

07/05/2021 (Santarém-Brazil) Latitude: -2.439°

07/05/2021 (Pelotas-Brazil) Latitude: -31.775°



 22.8° Santarém

 51.5° Pelotas

$$\text{circumference} = \frac{360^\circ \times 3259\text{km}}{51.5^\circ - 22.8^\circ} = 40879 \text{ km}$$

Distance	Angle
circumference	360°
3259km	51.5° - 22.8°




Kiara Vasconcelos
Turma A6A
Gnômom 13,6 cm
Sombra 23 cm

Júlia Macedo - Turma A6A
Gnômom 20 cm
Sombra 26 cm

Joana Rabassa Xavier
Turma A6B
Gnômom 13,5 cm
Sombra 17 cm

Rio de Janeiro CENOM, Brazil

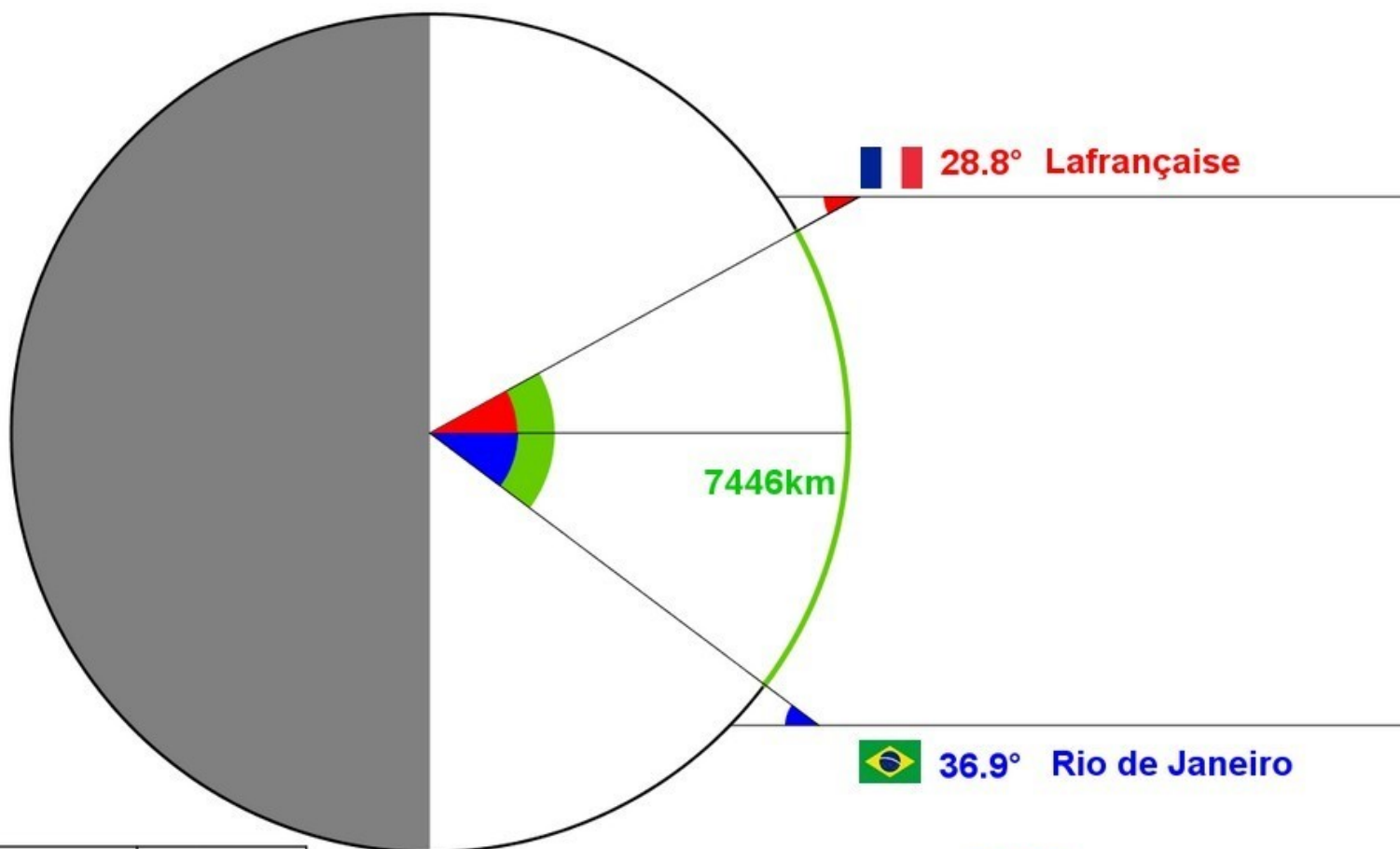


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Rio de Janeiro	Brazil	Centro Educacional Nosso Mundo	-22.890	-43.317

Date	Gnomon	Shadow	Angle
03 May 2021	20.0cm	-13.0cm	-33.0°
04 May 2021	20.0cm	-15.0cm	-36.9°
05 May 2021	20.0cm	-13.0cm	-33.0°
06 May 2021	20.0cm	-15.0cm	-36.9°
12 May 2021	20.0cm	-17.0cm	-40.4°
10 May 2021	20.0cm	-16.0cm	-38.7°

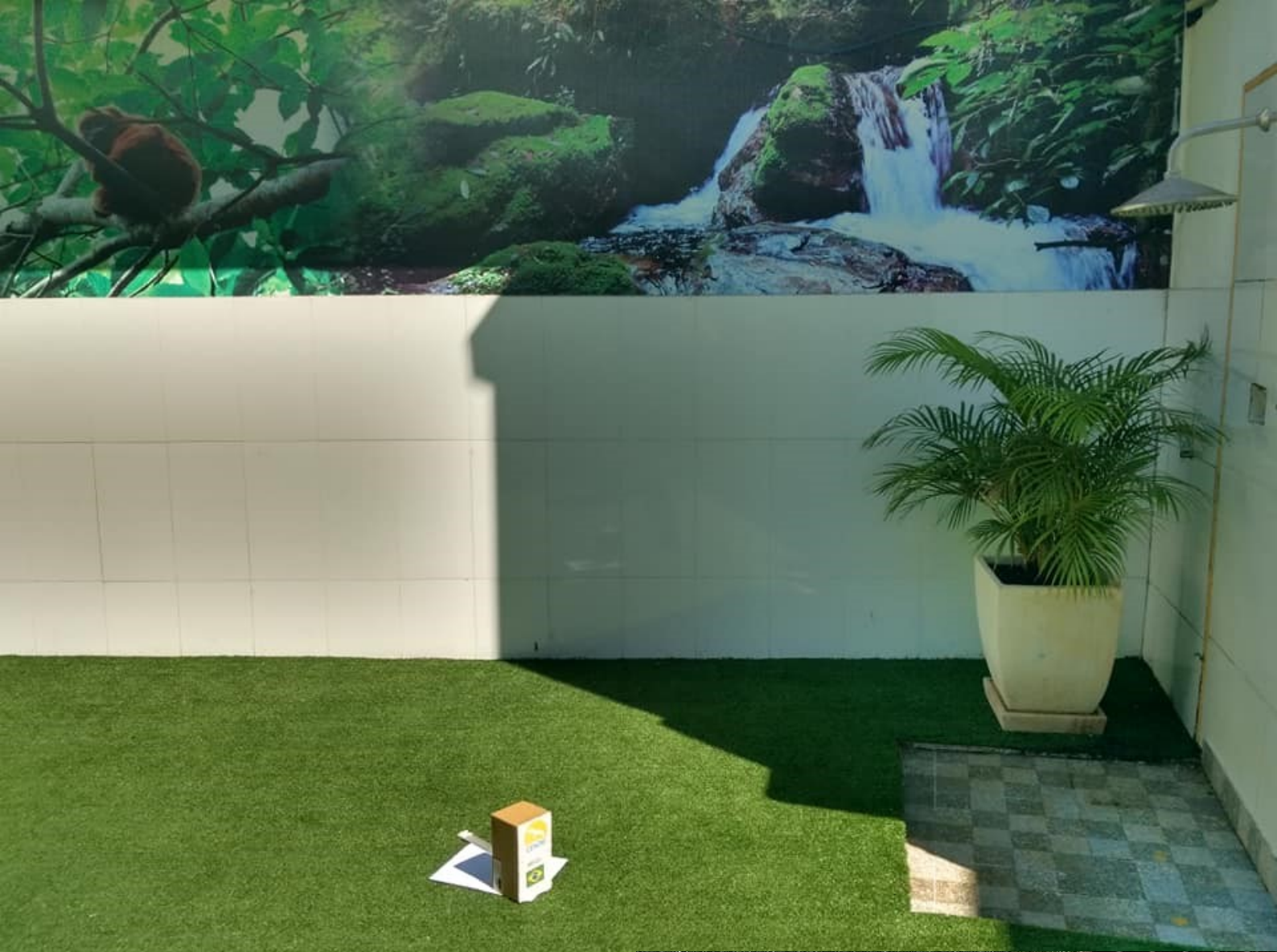
04/05/2021 (Lafrançaise-France) Latitude: 44.127°

04/05/2021 (Rio de Janeiro-Brazil) Latitude: -22.89°



Distance	Angle
circumference	360°
7446km	28.8° + 36.9°

$$\text{circumference} = \frac{360^\circ \times 7446\text{km}}{28.8^\circ + 36.9^\circ} = 40800 \text{ km}$$



Santarém, Brazil

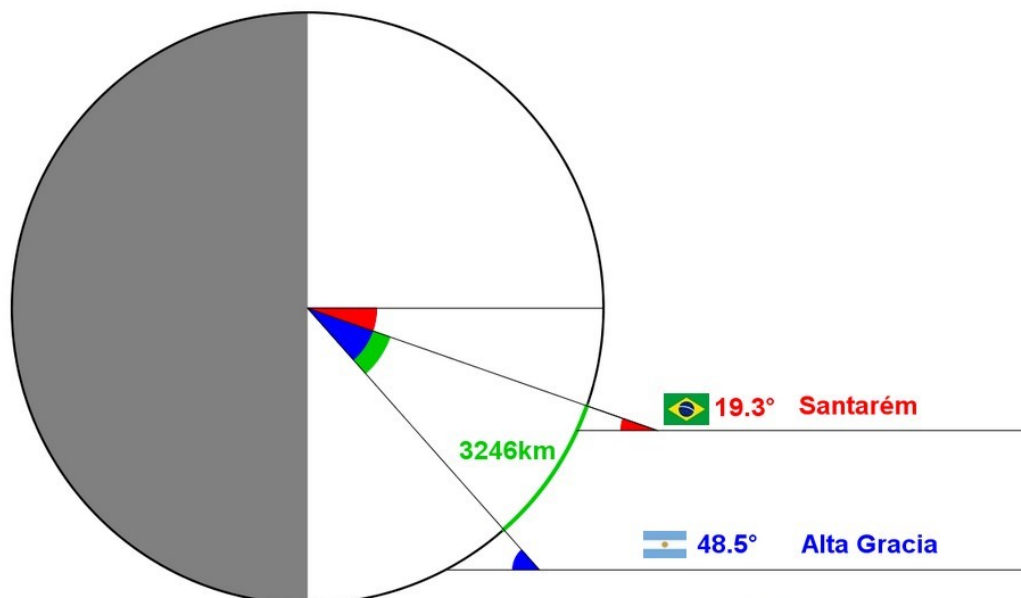


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Santarém	Brazil	Santarém Adventist College	-2.439	-54.699

Date	Gnomon	Shadow	Angle
01 May 2021	10.0cm	-2.0cm	-11.3°
02 May 2021	10.0cm	-3.0cm	-16.7°
03 May 2021	10.0cm	-4.5cm	-24.2°
05 May 2021	10.0cm	-2.5cm	-14.0°
06 May 2021	10cm	-3.5cm	-19.3°
07 May 2021	10.0cm	-4.2cm	-22.8°
08 May 2021	10.0cm	-3.2cm	-17.7°
09 May 2021	10.0cm	-3.0cm	-16.7°
10 May 2021	10.0cm	-3.2cm	-17.7°
13 May 2021	10.0cm	-3.0cm	-52.3°
15 May 2021	10cm	-4.5cm	-24.2°
16 May 2021	10.0cm	-3.0cm	-16.7°
18 May 2021	10cm	-2.5cm	-14°
19 May 2021	10.0cm	-3.0cm	-16.7°
21 May 2021	10cm	-3.2cm	-17.7°
22 May 2021	10cm	-3cm	-16.7°
26 May 2021	10cm	-4cm	-21.8°
28 May 2021	10.0cm	-3.0cm	-16.7°
29 May 2021	10cm	-4cm	-21.8°
30 May 2021	10cm	-4cm	-21.8°
31 May 2021	10cm	-5cm	-26.6°

06/05/2021 (Santarém-Brazil) Latitude: -2.439°

06/05/2021 (Alta Gracia-Argentina) Latitude: -31.656°



Distance	Angle
3246km	48.5° - 19.3°

$$\text{circumference} = \frac{360^\circ \times 3246\text{km}}{48.5^\circ - 19.3^\circ} = 40019 \text{ km}$$



