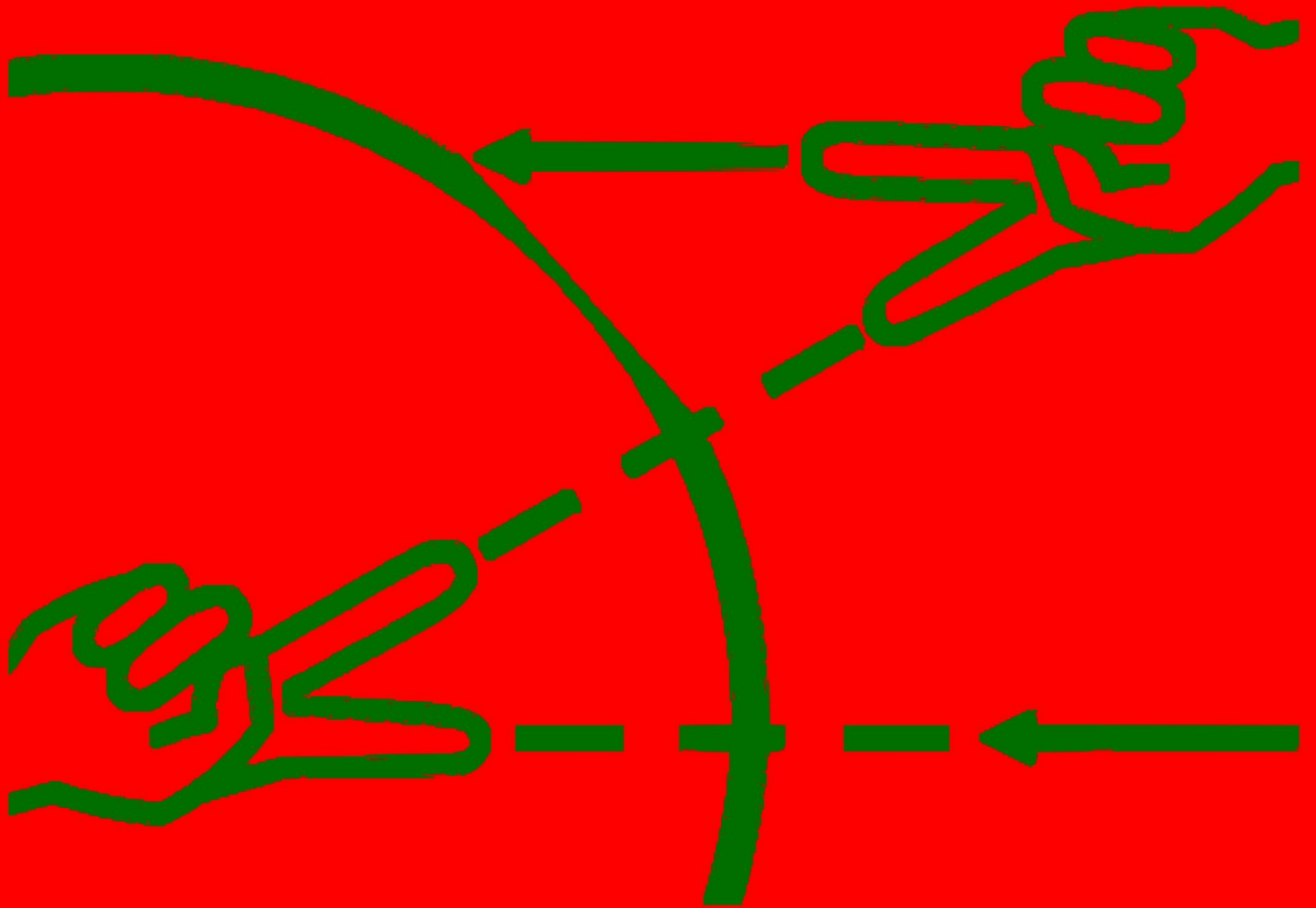


# Eratosthenes



December 2016

3 Continents

10 Countries

20 Schools

50 Measures

ARGENTINA (1)

Chivilcoy

BRAZIL (3)

Rio de Janeiro (3)

CHINA (1)

Shenzhen

CROATIA (2)

Brštanovo, Donji Muć

FRANCE (1)

Lafrançaise

GREECE (5)

Aigio, Athens Ilion, Ioannina, Petroupoli, Piraeus

ITALY (2)

Marina di Carrara, Merlara

INDIA (3)

Dholpur, Hyderabad, Yamunanagar

ROMANIA (1)

Busteni

SPAIN (1)

Vigo

Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Aigio	Greece	1st High School of Aigio	38.252	22.079
	Brštanovo	Croatia	Osnovna škola kneza Branimira	43.658	16.415
	Busteni	Romania	Colegiul Ion Kalinderu	45.416	25.535
	Chivilcoy	Argentina	Parque Cielos del Sur	-34.911	-60.014
	Dholpur	India	GSSS Tagawali	26.708	77.908
	Donji Muć	Croatia	oš kneza Branimira	43.694	16.462
	Hyderabad	India	Space Adhyaan	17.385	78.487
	Ilion	Greece	11th JuniorHigh School of Ilion	38.033	23.697
	Ioannina	Greece	Experimental College	39.666	20.845
	Lafrançaise	France	Collège Antonin Perbosc	44.127	1.237
	Marina di Carrara	Italy	M Buonarroti primary school	44.045	10.031
	Merlara	Italy	Lower Secondary School "Dante Alighieri"	45.163	11.446
	Petroupoli	Greece	4o Junior High School	38.036	23.674
	Piraeus	Greece	2nd Junior High School of Korydallos	37.977	23.655
	Rio de Janeiro	Brazil	Centro Educacional Nosso Mundo	-22.890	-43.317
	Rio de Janeiro	Brazil	Escola Municipal Bento Ribeiro	-22.904	-43.280
	Rio de Janeiro	Brazil	Museu do Amanhã	-22.895	-43.182
	Shenzhen	China	荔園小學南校區 Liyuan Primary School	22.549	114.092
	Vigo	Spain	IES de Beade	42.201	-8.716
	Yamunanagar	India	S.V.N.Public School Jagadhri	30.145	77.297

# Aigio, Greece

December 2016



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

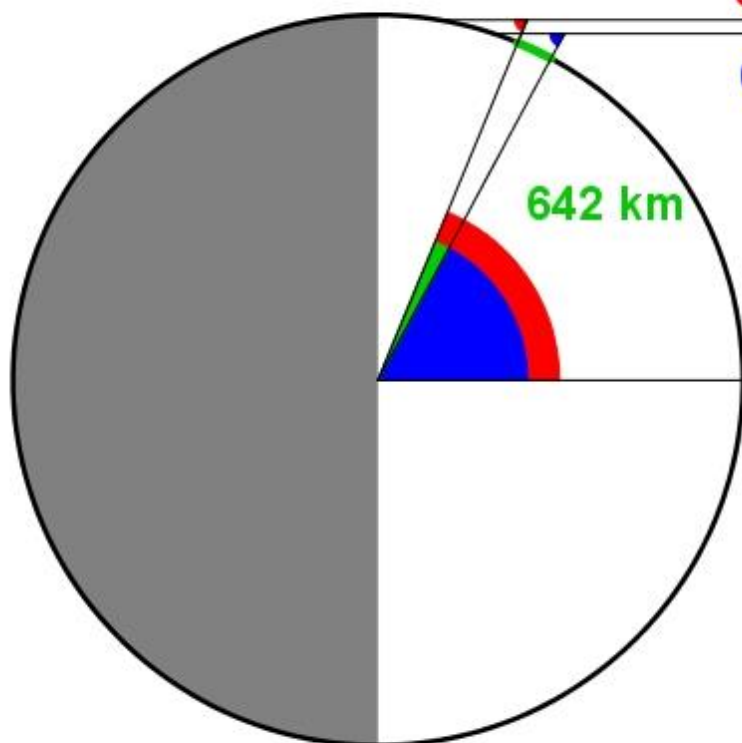
Date	Gnomon	Shadow	Angle
01 December	50 cm	87 cm	60.1°
02 December	50 cm	86.2 cm	59.9°
09 December	50 cm	90.5 cm	61.1°
15 December	30 cm	54.4 cm	61.1°
16 December	50 cm	92.3 cm	61.6°
19 December	50 cm	92.5 cm	61.6°
21 December	50 cm	92.7 cm	61.7°

21 December 2016 (Marina di Carrara-ITALY 44.033)

21 December 2016 (Aigio-GREECE 38.252)

67.5° Marina di Carrara

61.7° Aigio



$$\text{circumference} = \frac{360^\circ \times 642 \text{ km}}{67.5^\circ - 61.7^\circ} = 39848 \text{ km}$$





# Brštanovo, Croatia

December 2016

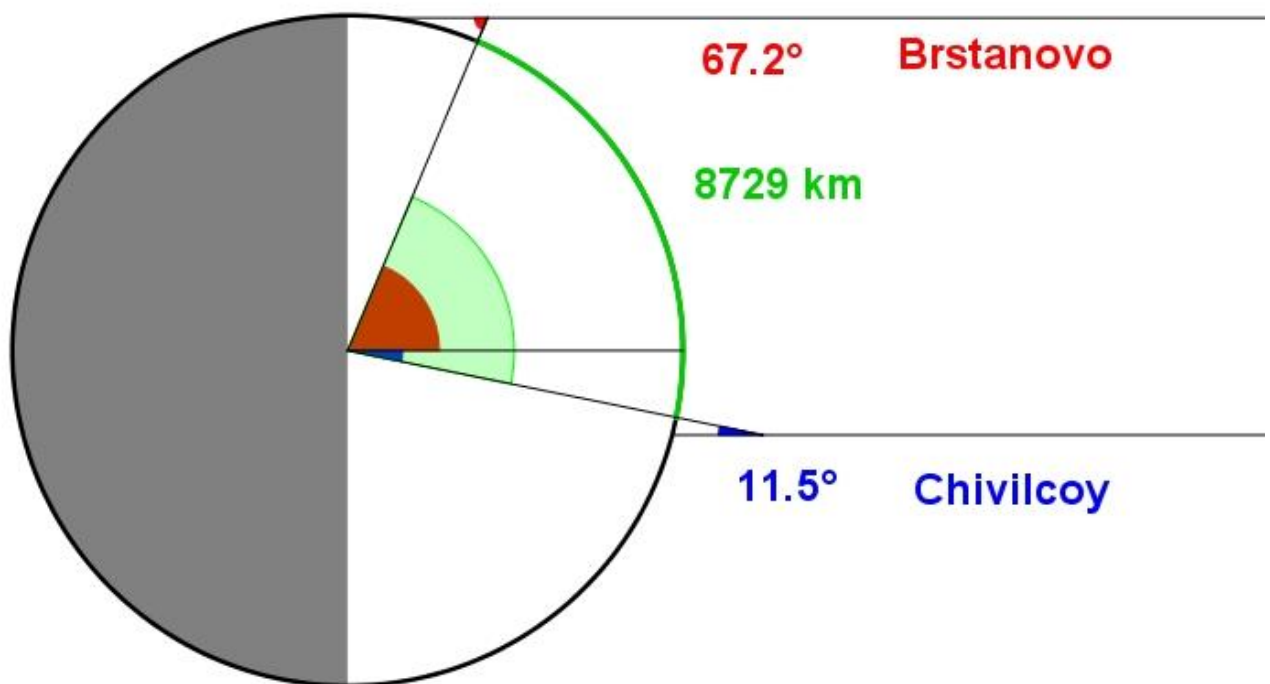


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Brštanovo	Croatia	Osnovna škola kneza Branimira	43.658	16.415

Date	Gnomon	Shadow	Angle
20 December	100 cm	237.7 cm	67.2°
21 December	100 cm	237.5 cm	67.2°

21 December 2016 (Brstanovo-CROATIA) Latitude: 43.658 °

21 December 2016 (Chivilcoy-ARGENTINA) Latitude: -34.911 °



$$\text{circumference} = \frac{360^\circ \times 8729 \text{ km}}{67.2^\circ + 11.5^\circ} = 39929 \text{ km}$$








# Busteni, Romania

December 2016

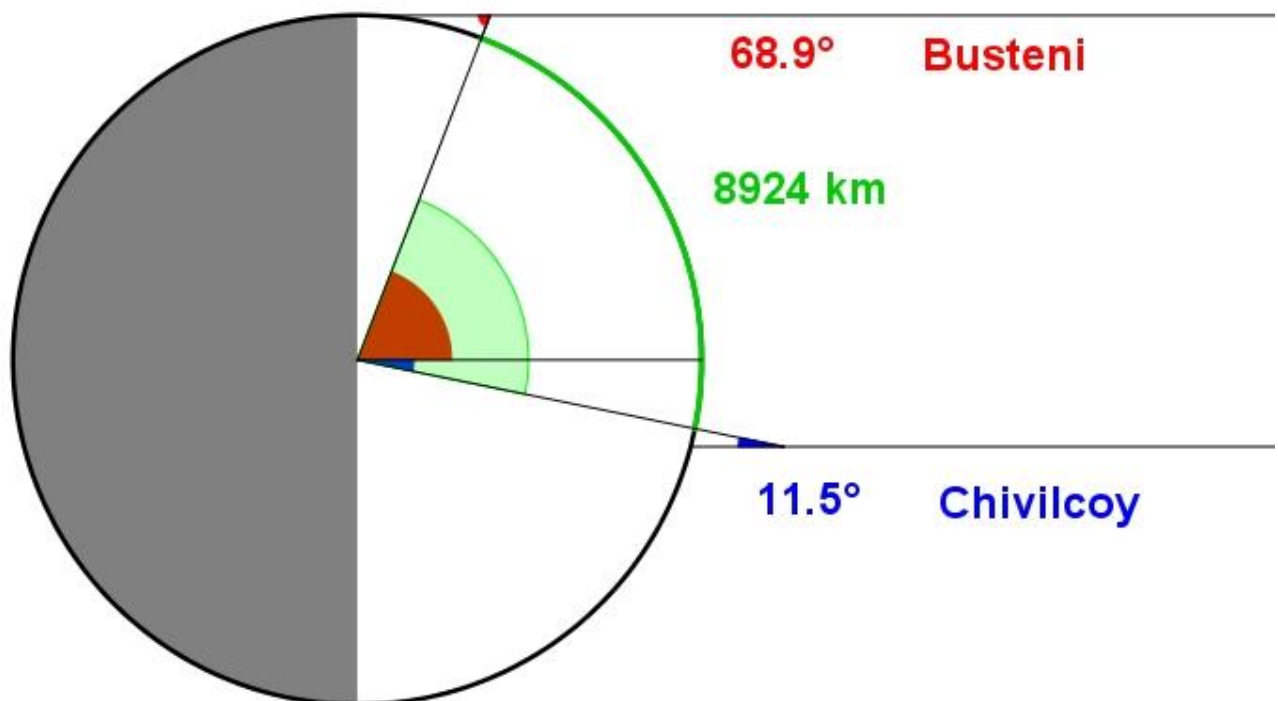


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Busteni	Romania	Colegiul Ion Kalinderu	45.416	25.535

Date	Gnomon	Shadow	Angle
05 December	42 cm	103 cm	67.8°
08 December	30 cm	75 cm	68.2°
15 December	40.2 cm	103 cm	68.7°
16 December	50.6 cm	130 cm	68.7°
17 December	50.6 cm	130.5 cm	68.8°
21 December	23 cm	59.6 cm	68.9°
22 December	77 cm	199.5 cm	68.9°

21 December 2016 (Busteni-ROMANIA) Latitude: 45.416 °

21 December 2016 (Chivilcoy-ARGENTINA) Latitude: -34.911 °



$$\text{circumference} = \frac{360^\circ \times 8924 \text{ km}}{68.9^\circ + 11.5^\circ} = 39958 \text{ km}$$






# Chivilcoy, Argentina

December 2016

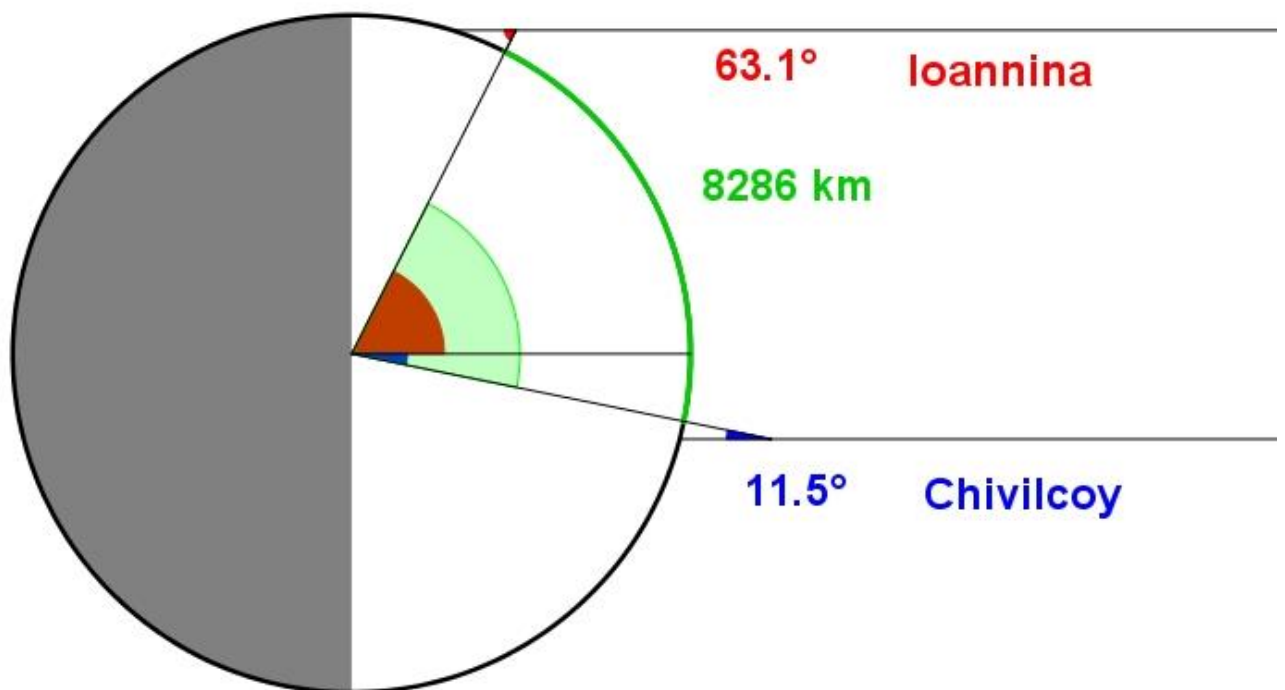


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Chivilcoy	Argentina	Parque Cielos del Sur	-34.911	-60.014

Date	Gnomon	Shadow	Angle
21 December	408 cm	-83 cm	-11.5°

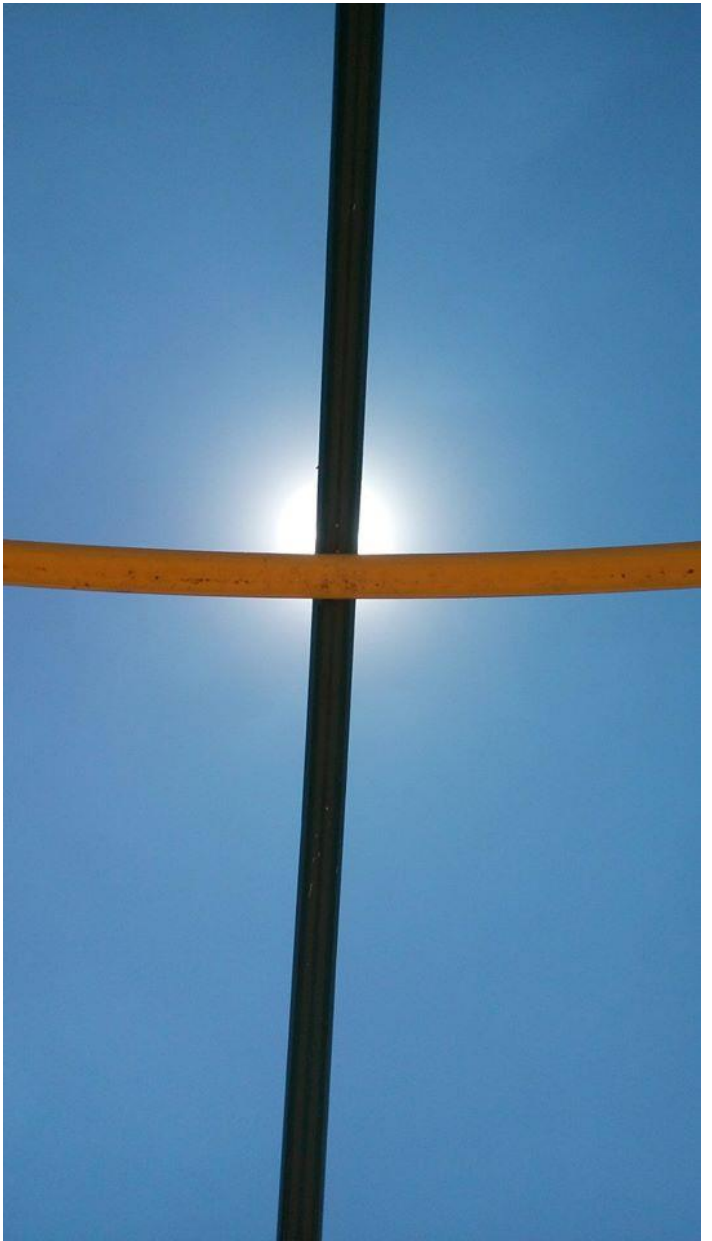
21 December 2016 (Ioannina-GREECE) Latitude: 39.667 °

21 December 2016 (Chivilcoy-ARGENTINA) Latitude: -34.911 °



$$\text{circumference} = \frac{360^\circ \times 8286 \text{ km}}{63.1^\circ + 11.5^\circ} = 39986 \text{ km}$$






# Dholpur, India

December 2016

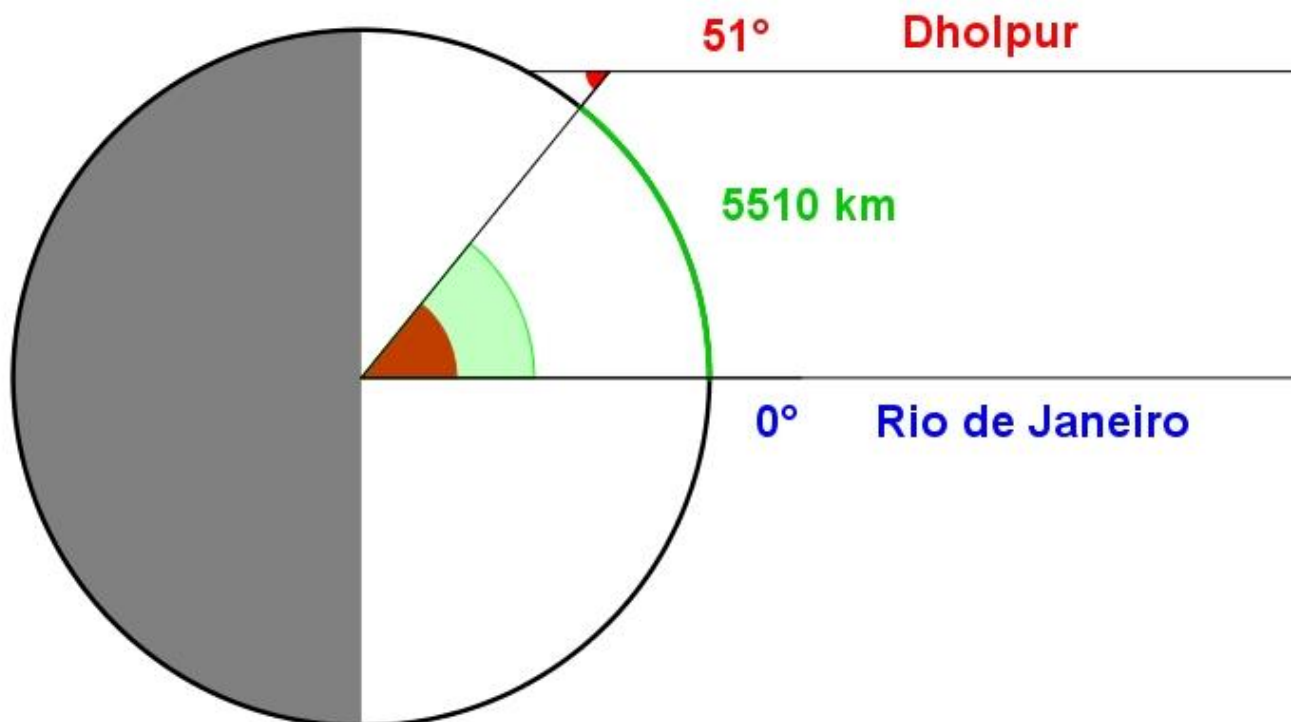


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Dholpur	India	GSSS Tagawali	26.708	77.908

Date	Gnomon	Shadow	Angle
22 December	58 cm	71.5 cm	51°

22 December 2016 (Dholpur-INDIA) Latitude: 26.708 °

22 December 2016 (Rio de Janeiro-BRAZIL) Latitude: -22.89 °



$$\text{circumference} = \frac{360^\circ \times 5510 \text{ km}}{51^\circ + 0^\circ} = 38894 \text{ km}$$






# Donji Muć, Croatia

December 2016



Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Donji Muć	Croatia	oš kneza Branimira	43.694	16.462

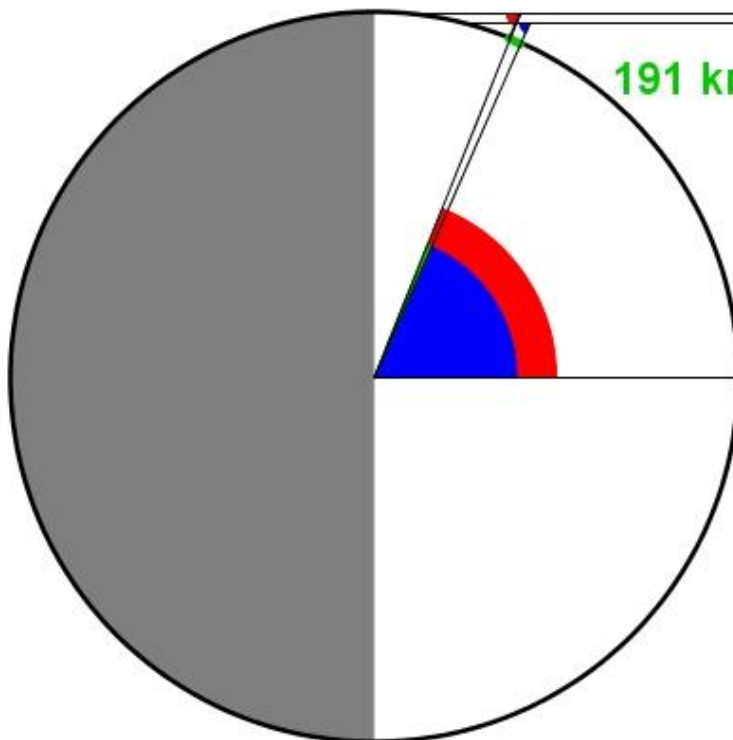
Date	Gnomon	Shadow	Angle
08 December	100 cm	229 cm	66.4°

08 December 2016 (Busteni-ROMANIA) Latitude: 45.416°

08 December 2016 (Donji Muc-CROATIA) Latitude: 43.694°

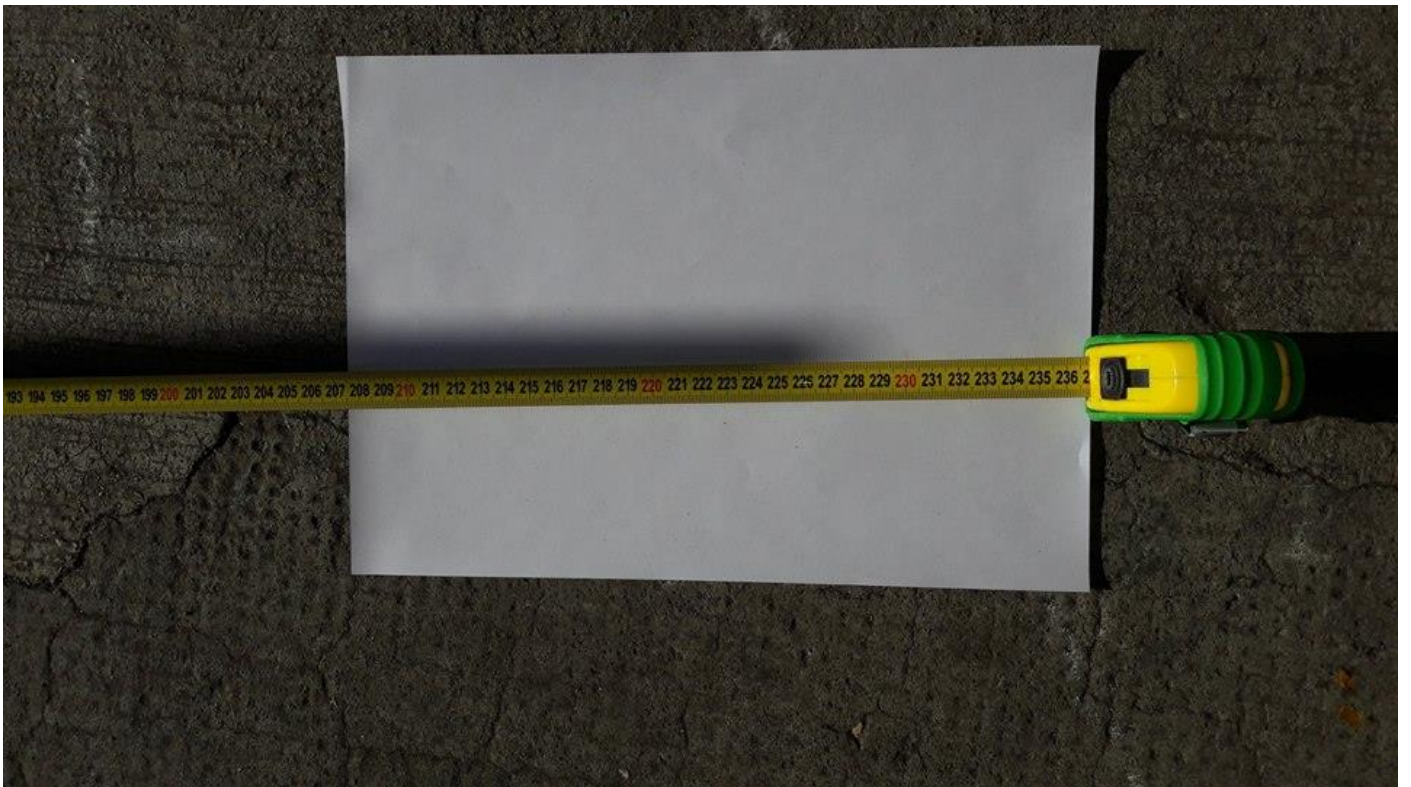
**68.2° Busteni**

**191 km 66.4° Donji Muc**



$$\text{circumference} = \frac{360^\circ \times 191 \text{ km}}{68.2^\circ - 66.4^\circ} = 38200 \text{ km}$$






# Hyderabad, India

December 2016

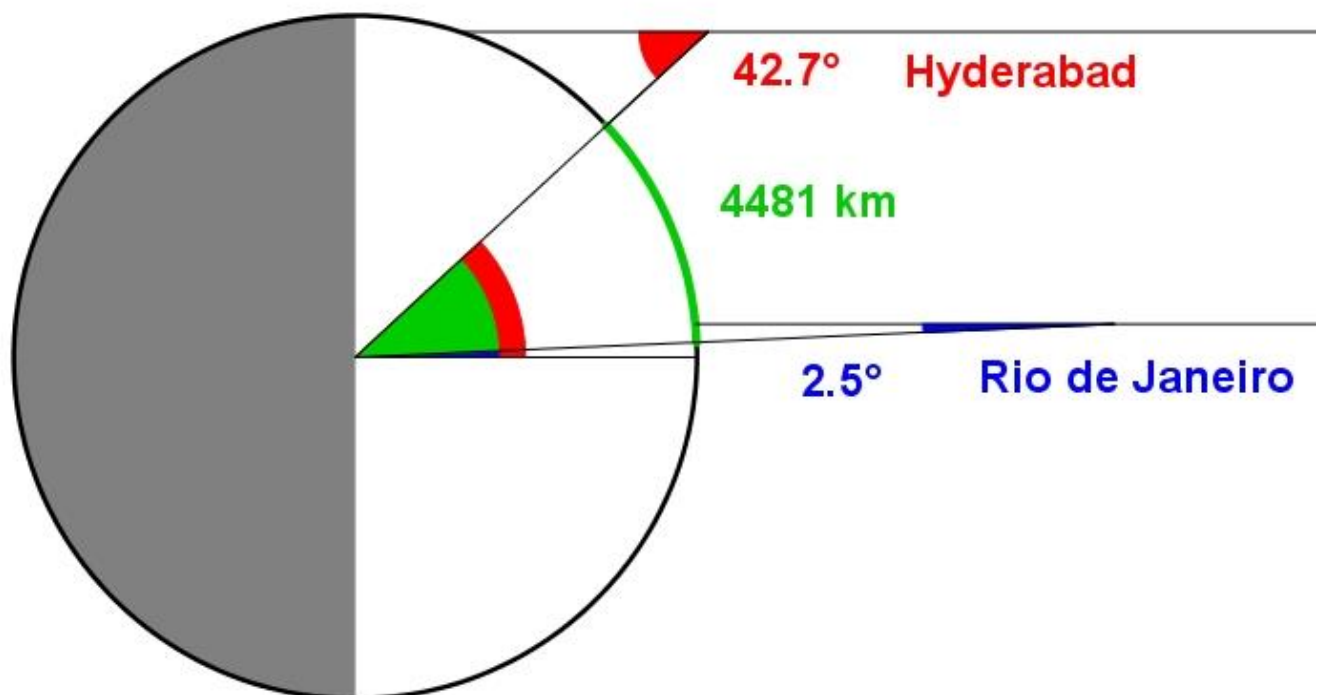


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Hyderabad	India	Space Adhyaan	17.385	78.487

Date	Gnomon	Shadow	Angle
21 December	19.5 cm	18 cm	42.7°

21 December 2016 (Hyderabad-INDIA 17.385)

21 December 2016 (Rio de Janeiro-BRAZIL -22.95)



$$\text{circumference} = \frac{360^\circ \times 4481 \text{ km}}{42.7^\circ - 2.5^\circ} = 40128 \text{ km}$$





12/21/2016 12:22

# Ilion, Greece

December 2016



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

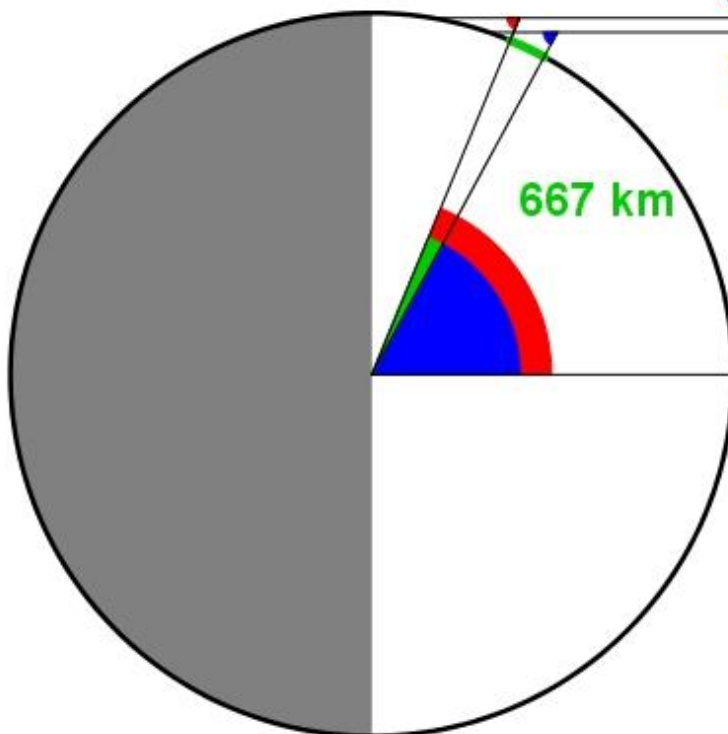
Date	Gnomon	Shadow	Angle
02 December	30.4 cm	52.8 cm	60.1°
09 December	131 cm	235 cm	60.9°
14 December	30.4 cm	55.3 cm	61.2°
21 December	30.4 cm	56 cm	61.5°

21 December 2016 (Marina di Carrara-ITALY 44.033)

21 December 2016 (Ilion-GREECE 38.033)

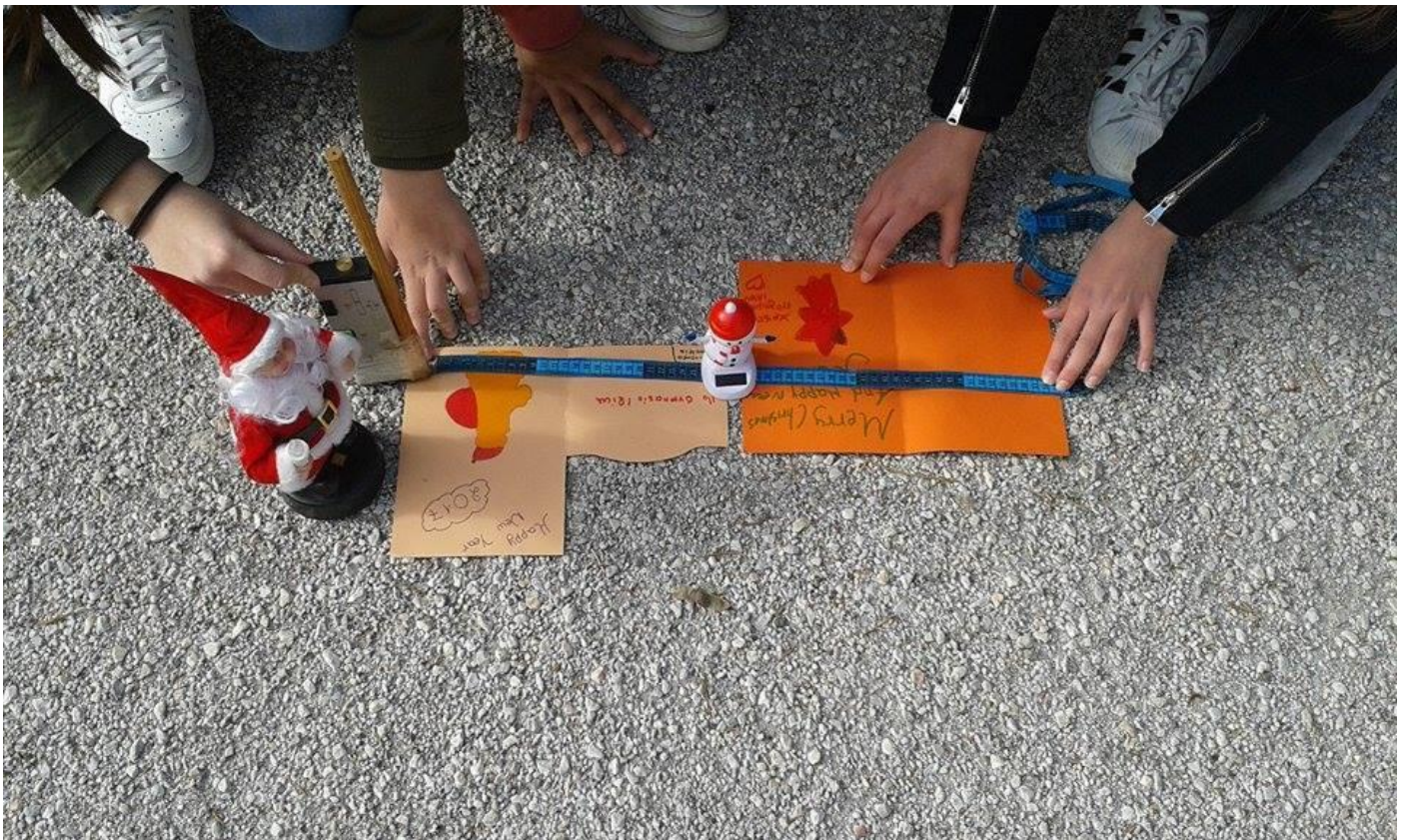
67.5° Marina di Carrara

61.5° Ilion



$$\text{circumference} = \frac{360^\circ \times 667 \text{ km}}{67.5^\circ - 61.5^\circ} = 40020 \text{ km}$$








# Ioannina, Greece

December 2016

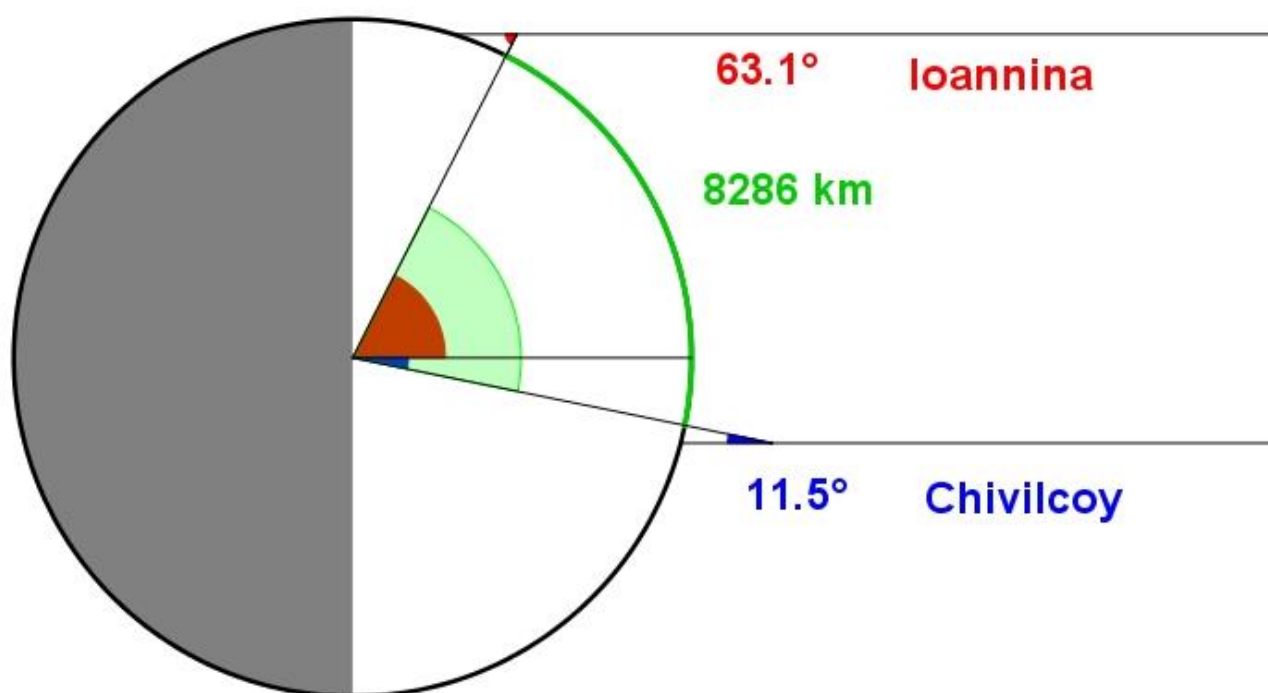


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Ioannina	Greece	Experimental College	39.666	20.845

Date	Gnomon	Shadow	Angle
01 December	100 cm	184.5 cm	61.5°
14 December	90 cm	176 cm	62.9°
21 December	100 cm	197 cm	63.1°

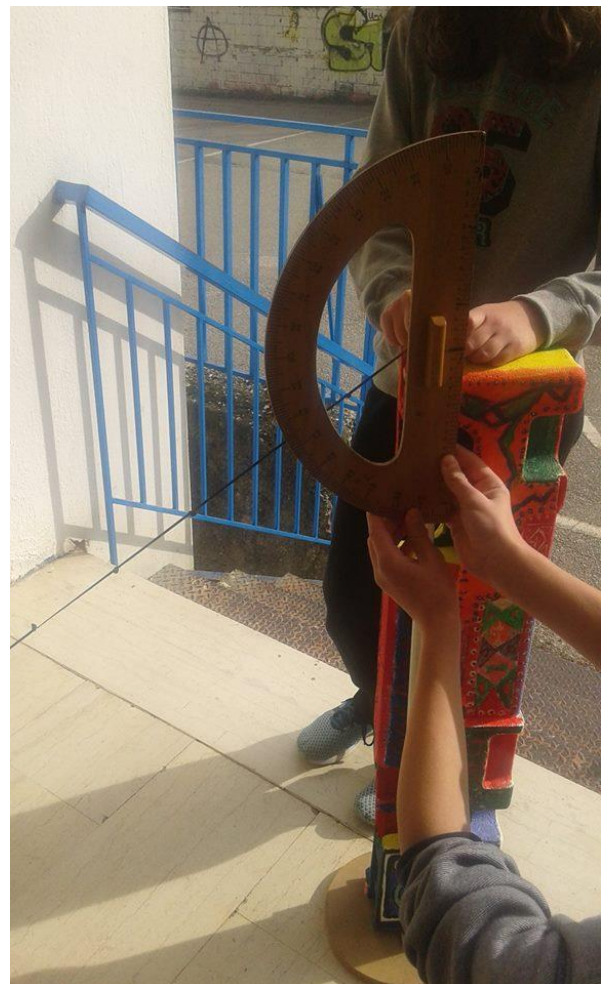
21 December 2016 (Ioannina-GREECE) Latitude: 39.667°

21 December 2016 (Chivilcoy-ARGENTINA) Latitude: -34.911°



$$\text{circumference} = \frac{360^\circ \times 8286 \text{ km}}{63.1^\circ + 11.5^\circ} = 39986 \text{ km}$$








# Lafrançaise, France

December 2016



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

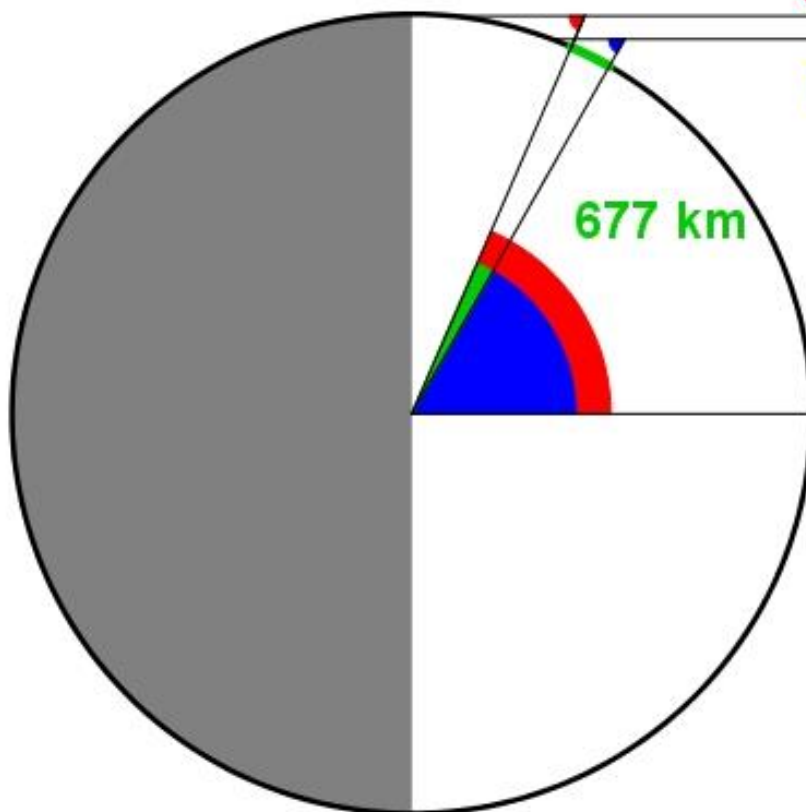
Date	Gnomon	Shadow	Angle
02 December	100 cm	225 cm	66.0°
05 December	100 cm	230 cm	66.5°
06 December	100 cm	233 cm	66.8°
09 December	100 cm	235 cm	66.9°
12 December	100 cm	238 cm	67.2°
16 December	100 cm	243 cm	67.6°

**05 December 2016 (Lafrançaise-FRANCE 44.127)**

**05 December 2016 (Petroupoli-GREECE 38.036)**

**66.5° Lafrançaise**

**60.4° Petroupoli**



$$\text{circumference} = \frac{360^\circ \times 677 \text{ km}}{66.5^\circ - 60.4^\circ} = 39954 \text{ km}$$





# Marina di Carrara, Italy

December 2016



Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Marina di Carrara	Italy	M Buonarroti primary school	44.045	10.031

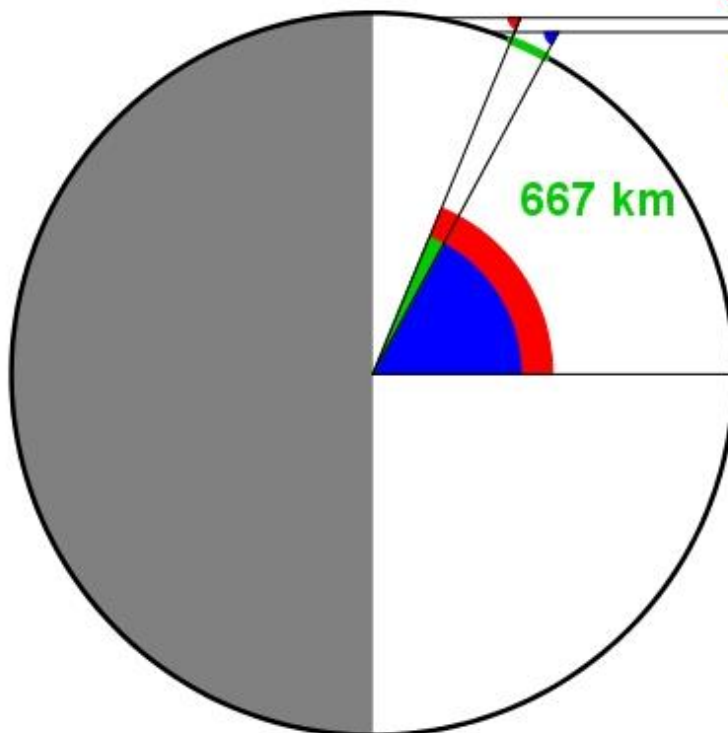
Date	Gnomon	Shadow	Angle
21 December	100 cm	241 cm	67.5°

21 December 2016 (Marina di Carrara-ITALY 44.033)

21 December 2016 (Ilion-GREECE 38.033)

67.5° Marina di Carrara

61.5° Ilion



$$\text{circumference} = \frac{360^\circ \times 667 \text{ km}}{67.5^\circ - 61.5^\circ} = 40020 \text{ km}$$





# Merlara, Italy

December 2016

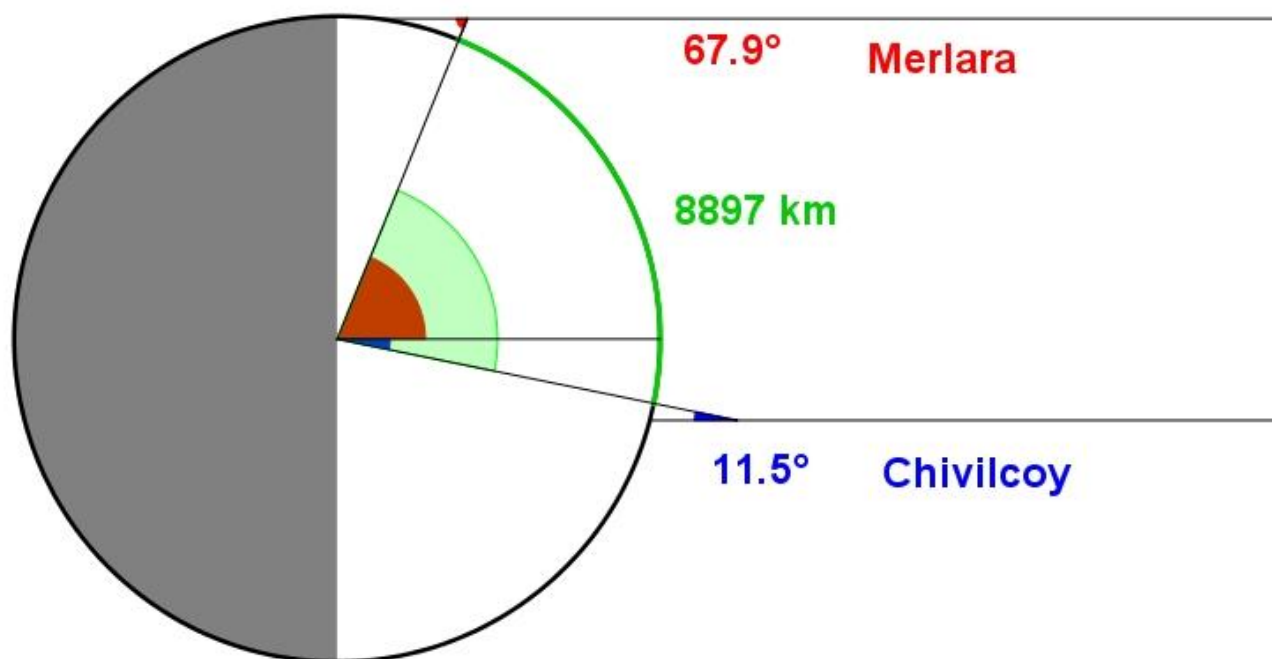


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Merlara	Italy	Lower Secondary School "Dante Alighieri"	45.163	11.446

Date	Gnomon	Shadow	Angle
21 December	100 cm	246 cm	67.9°

21 December 2016 (Merlara-ITALY) Latitude: 45.166 °

21 December 2016 (Chivilcoy-ARGENTINA) Latitude: -34.911 °



$$\text{circumference} = \frac{360^\circ \times 8897 \text{ km}}{67.9^\circ + 11.5^\circ} = 40339 \text{ km}$$






# Petroupoli, Greece

December 2016



Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Petroupoli	Greece	4o Junior High School	38.036	23.674

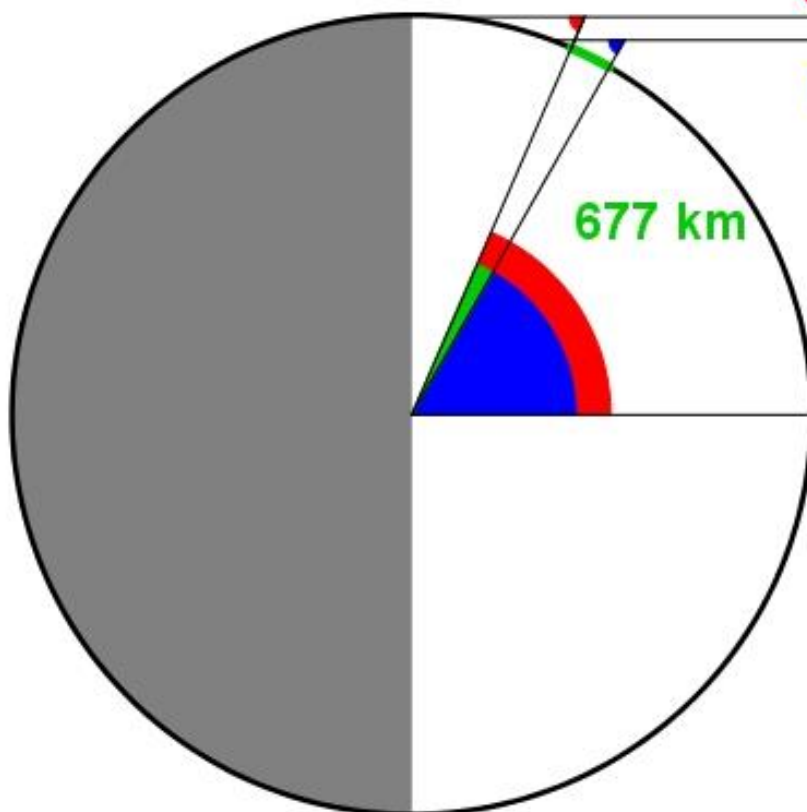
Date	Gnomon	Shadow	Angle
05 December	52.3 cm	92.2 cm	60.4°
12 December	52.3 cm	95 cm	61.2°
15 December	52.3 cm	95.5 cm	61.3°
19 December	52.3 cm	96 cm	61.4°
22 December	52.3 cm	96.5 cm	61.5°

05 December 2016 (Lafrançaise-FRANCE 44.127)

05 December 2016 (Petroupoli-GREECE 38.036)

66.5° Lafrançaise

60.4° Petroupoli



$$\text{circumference} = \frac{360^\circ \times 677 \text{ km}}{66.5^\circ - 60.4^\circ} = 39954 \text{ km}$$







# Piraeus, Greece

December 2016



Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Piraeus	Greece	2nd Junior High School of Korydallos	37.977	23.655

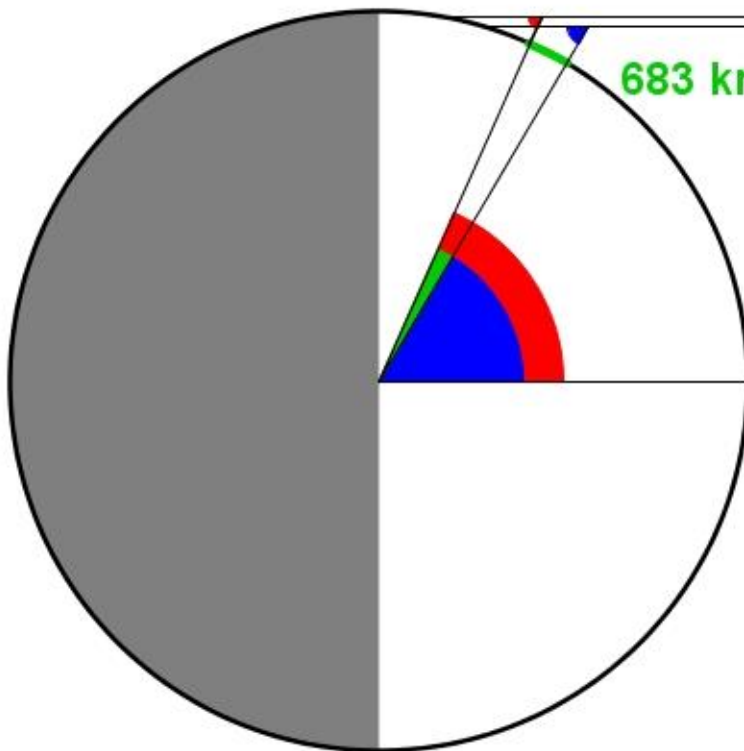
Date	Gnomon	Shadow	Angle
02 December	100 cm	169 cm	59.4°
09 December	100 cm	171 cm	59.7°
20 December	100 cm	173 cm	60.0°

02 December 2016 (Lafrançaise-FRANCE) Latitude: 44.127°

02 December 2016 (Piraeus-GREECE) Latitude: 37.977°

66° Lafrançaise

683 km 59.4° Piraeus



$$\text{circumference} = \frac{360^\circ \times 683 \text{ km}}{66^\circ - 59.4^\circ} = 37255 \text{ km}$$





# Rio de Janeiro CENOM, Brazil

December 2016

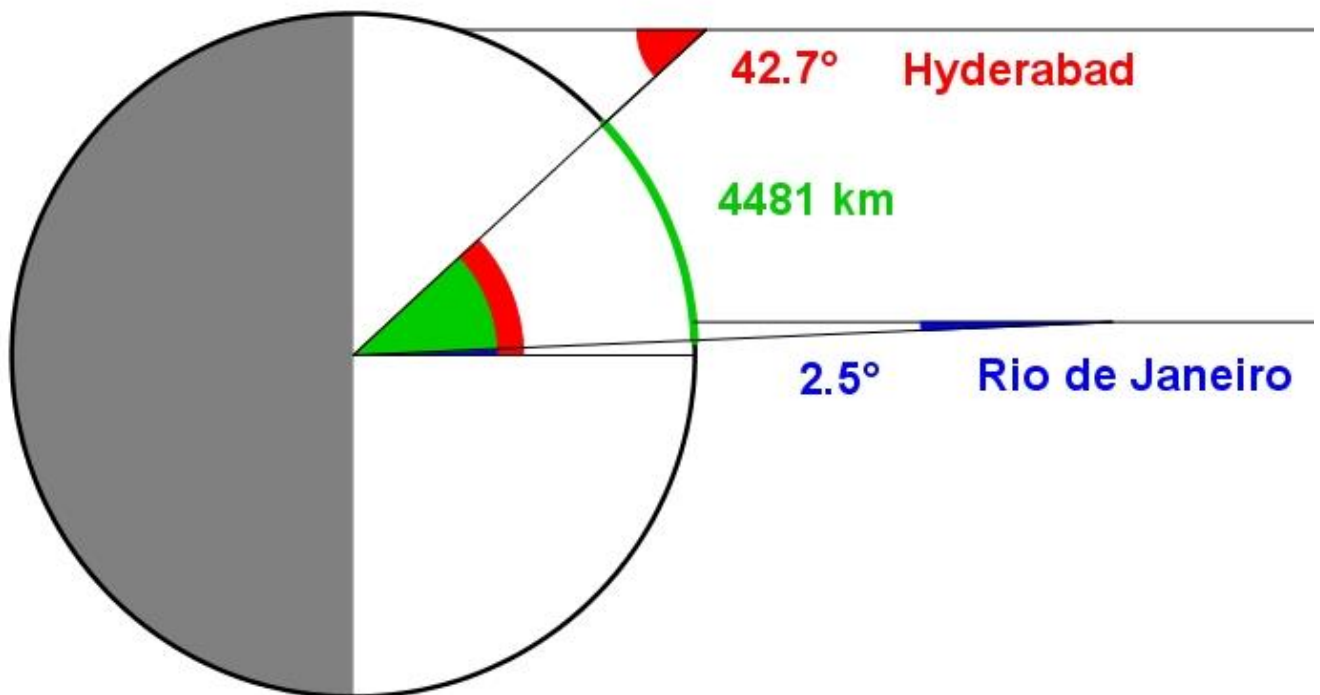


Flag	City	Country	School	Latitude (°) +N/-S		Rio de Janeiro	Brazil	Centro Educacional Nosso Mundo	-22.890	-43.317
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Date	Gnomon	Shadow	Angle
8 December	70 cm	-13 cm	-10.5°
21 December	70 cm	3 cm	2.5°
22 December	70 cm	0 cm	0°

21 December 2016 (Hyderabad-INDIA 17.385)

21 December 2016 (Rio de Janeiro-BRAZIL -22.95)



$$\text{circumference} = \frac{360^\circ \times 4481 \text{ km}}{42.7^\circ - 2.5^\circ} = 40128 \text{ km}$$






# Rio de Janeiro Méier, Brazil

December 2016

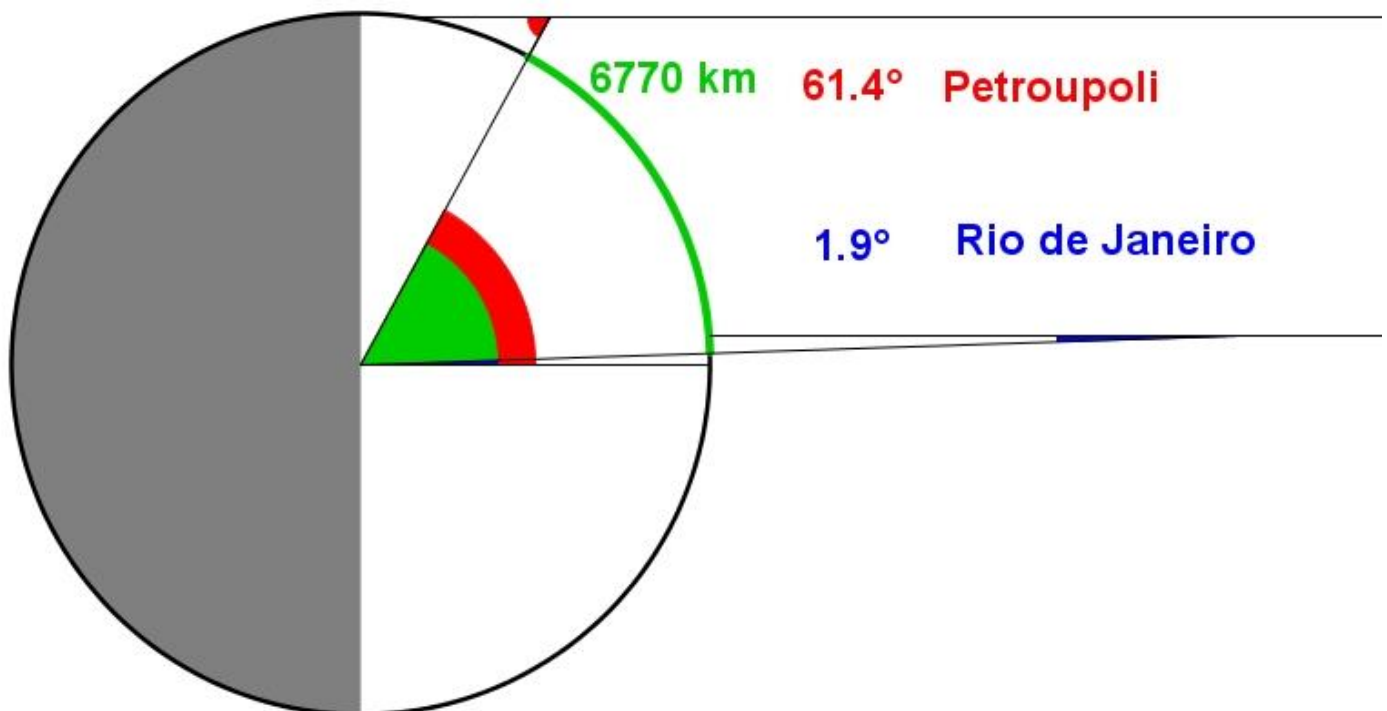


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Rio de Janeiro	Brazil	Escola Municipal Bento Ribeiro	-22.904	-43.280

Date	Gnomon	Shadow	Angle
19 December	300 cm	10 cm	1.9°

19 December 2016 (Petroupoli-GREECE) Latitude: 38.036°

19 December 2016 (Rio de Janeiro-BRAZIL) Latitude: -22.904°



$$\text{circumference} = \frac{360^\circ \times 6770 \text{ km}}{61.4^\circ - 1.9^\circ} = 40961 \text{ km}$$






# Rio de Janeiro Amanhã, Brazil

December 2016

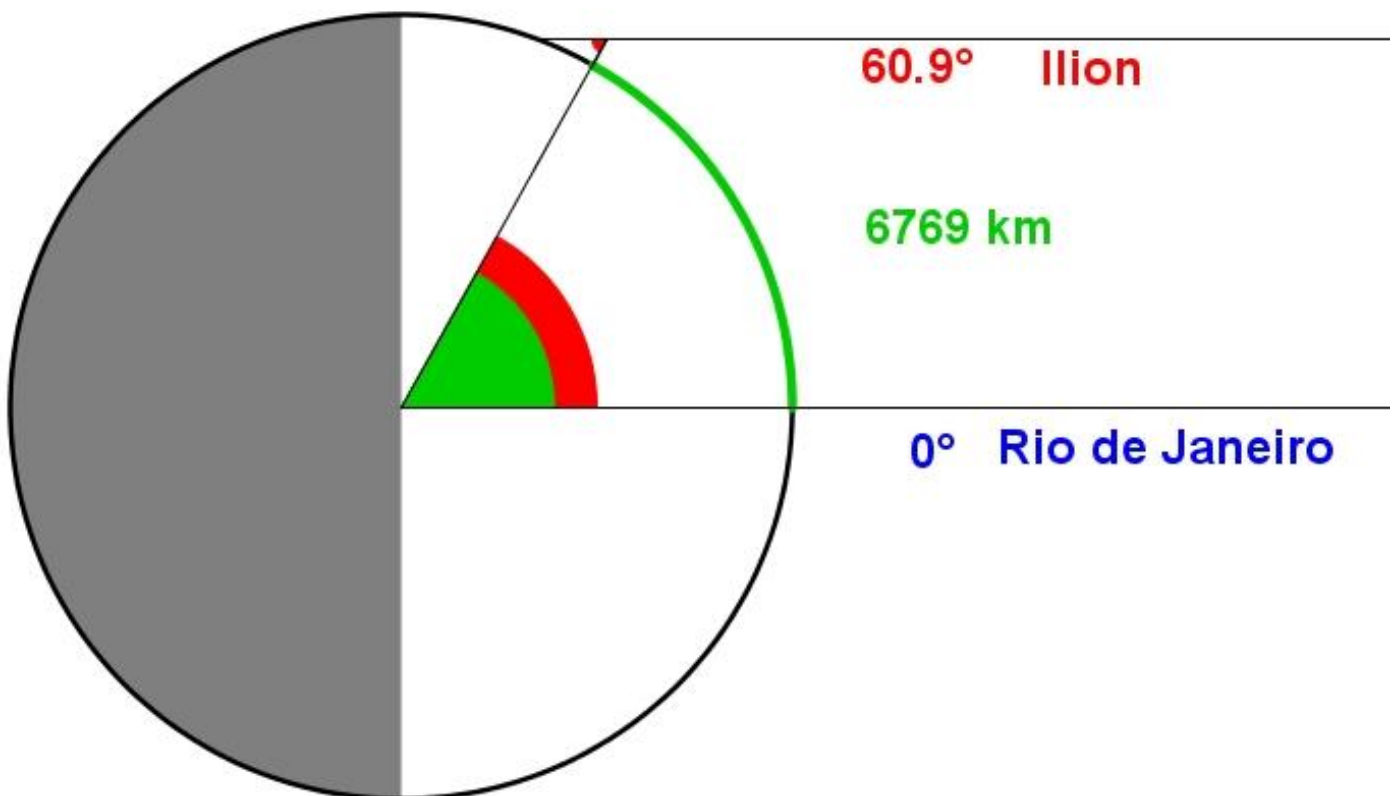


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Rio de Janeiro	Brazil	Museu do Amanhã	-22.895	-43.182

Date	Gnomon	Shadow	Angle
10 December	100 cm	07 cm	0°

09 December 2016 (Ilion-GREECE) Latitude: 38.033°

10 December 2016 (Rio de Janeiro) Latitude: -22.895°



$$\text{circumference} = \frac{360^\circ \times 6769 \text{ km}}{60.9^\circ - 0^\circ} = 40014 \text{ km}$$





# Shenzhen, China

December 2016



Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Shenzhen	China	荔園小學南校區 Liyuan Primary School	22.549	114.092

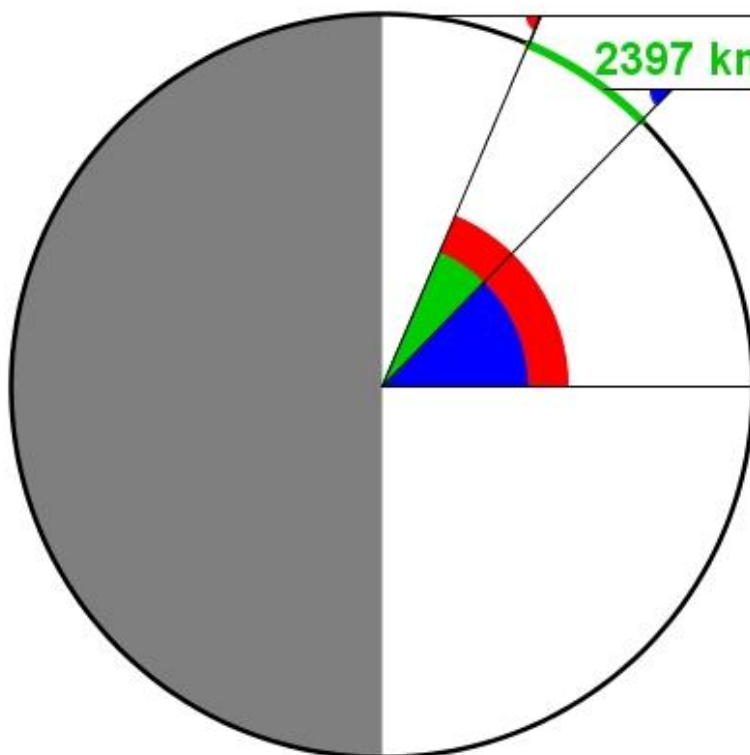
Date	Gnomon	Shadow	Angle
7 December	50 cm	51.2 cm	45.7°

06 December 2016 (Lafrançaise-FRANCE) Latitude: 44.127°

07 December 2016 (Shenzhen-CHINA) Latitude: 22.549°

66.8° Lafrançaise

45.7° Shenzhen



$$\text{circumference} = \frac{360^\circ \times 2397 \text{ km}}{66.8^\circ - 45.7^\circ} = 40897 \text{ km}$$







# Vigo, Spain

December 2016

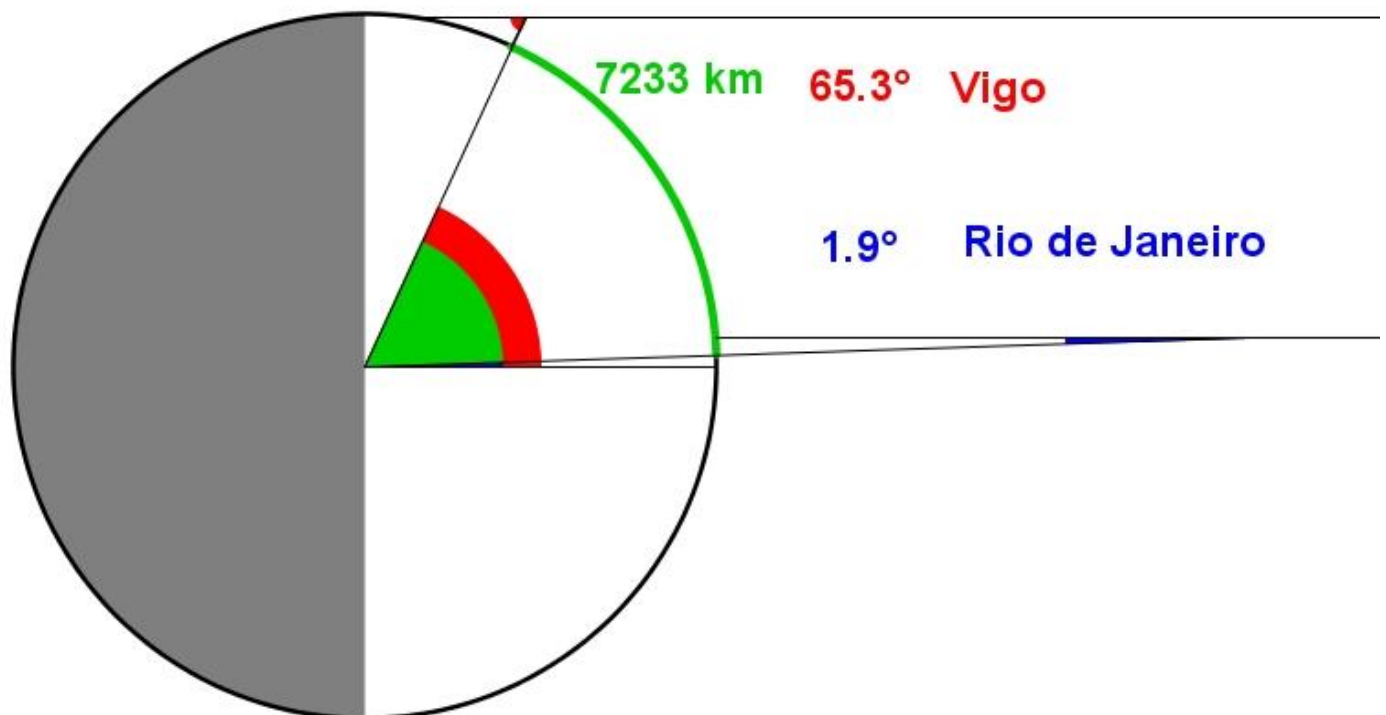


Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Vigo	Spain	IES de Beade	42.201	-8.716

Date	Gnomon	Shadow	Angle
19 December	100 cm	217 cm	65.3°

19 December 2016 (Vigo-SPAIN) Latitude: 42.201°

19 December 2016 (Rio de Janeiro-BRAZIL) Latitude: -22.904°



$$\text{circumference} = \frac{360^\circ \times 7233 \text{ km}}{65.3^\circ - 1.9^\circ} = 41071 \text{ km}$$






# Yamunanagar SVNPS, India

December 2016



Flag	City	Country	School	Latitude (°) +N/-S	Longitude (°) +E/-W
	Yamunanagar	India	S.V.N.Public School Jagadhri	30.145	77.297

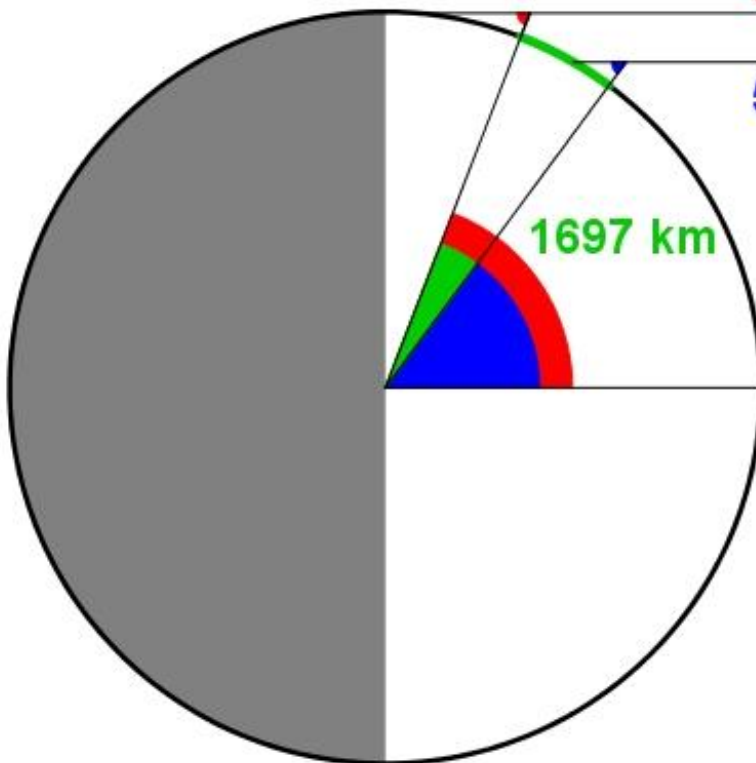
Date	Gnomon	Shadow	Angle
22 December	60.1 cm	81.1 cm	53.5°

22 December 2016 (Busteni-ROMANIA 45.416)

22 December 2016 (Yamunanagar-INDIA 30.145)

68.9° Busteni

53.5° Yamunanagar



$$\text{circumference} = \frac{360^\circ \times 1697 \text{ km}}{68.9^\circ - 53.5^\circ} = 39670 \text{ km}$$





