Earth Curvature Calculator

by [Eldøy Projects](#)

Accurately calculate the curvature you are supposed to see on the ball Earth.

Distance: `20` ⇕ `Miles` ∨ Calculate

Distance	Curvature
1 mile	0.00013 miles = 0.67 feet
2 miles	0.00051 miles = 2.67 feet
5 miles	0.00316 miles = 16.67 feet
10 miles	0.01263 miles = 66.69 feet
20 miles	0.05052 miles = 266.75 feet
50 miles	0.31575 miles = 1667.17 feet
100 miles	1.26296 miles = 6668.41 feet
200 miles	5.05102 miles = 26669.37 feet
500 miles	31.5336 miles = 166497.53 feet
1000 miles	125.632 miles = 663337.65 feet

Explanation:

The Earth's radius `(r)` is 6371 km or 3959 miles, based on numbers from [Wikipedia](#), which gives a circumference `(c)` of `c = 2 * π * r = 40 030 km`

We wish to find the height `(h)` which is the drop in curvature over the distance `(d)`

Using the circumference we find that 1 kilometer has the angle `360° / 40 030 km = 0.009°`. The angle `(a)` is then `a = 0.009° * distance (d)`

The derived formula `h = r * (1 - cos a)` is accurate for any distance `(d)`
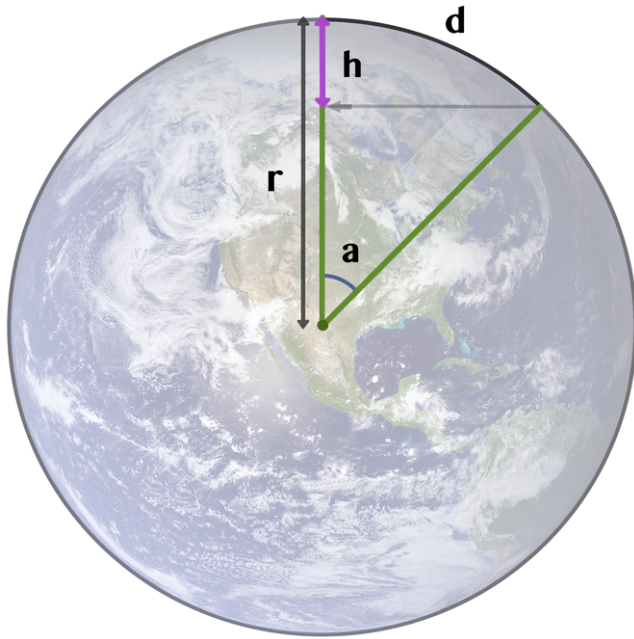
Note: Using the formula *8 times the distance in miles squared* is not accurate for long distances but is fine for practical use.

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