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The Children of Indiana Nature Park

Math Fun For Students with Deeds

1. Equal sharing of space. The Children of Indiana Nature Park covers an area of approximately 29 acres. In celebration of Indiana's bicentennial, the project partners wish to give a deed to each one of Indiana's 1,100,000 students. Assuming that the property is divided evenly among all students, find the area of each student's plot in square feet. Round your answer to the nearest whole number.
2. Density. If each of Indiana's 1,100,000 students were to arrive at the Children of Indiana Nature Park at the same time and stands on their spot, what would the population per square mile be in the Children of Indiana Nature Park at that moment?
3. Latitude and longitude. Your deed has a coordinate that is approximately 39.80 (North) Latitude, and -84.97 (West) Longitude, which is approximately the center of the Children of Indiana Nature Park. Where on earth are you if:
 - a. The coordinate is 39.80 (North) Latitude, and 84.97 (East) Longitude?
 - b. The coordinate is -39.80 (South) Latitude, and -84.97 (West) Longitude?
 - c. The numeric values of the latitude and longitude on your deed are transposed (i.e., reversed)?
4. Alternative units of expression for latitude and longitude. The latitude and longitude coordinate on your Nature IN-Deed are expressed on decimal degrees. Write the same coordinate, expressed in degrees, minutes, and seconds.

SOLUTIONS

1. 1 acre = 43,560 square feet (sf), so 29 acres = 1,263,240 sf. Dividing this area by the population of 1,100,000 students gives 1 square foot per student.
2. 1 square mile (sq. mi.) = 640 acres, so 29 acres = 0.045 sq. mi. For 1,100,000 students on 0.045 sq. mi., this would be a density of 24.3 million students per square mile.
3.
 - a. Taklimakan desert in western China,
 - b. Pacific Ocean, off the western coast of Chile,
 - c. Antarctica
4. Conversion Factor: $1^{\circ}=60'=3600''$

Example Latitude:

39.7996553524863

39°

$0.7996553524863 \times 60' = 47.97932115$, or 47'

$0.97932115 \times 3600/60 = 58.76''$

So, it is $39^{\circ} 47' 58.76''$