



**Solution**  
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1. The Tropic of Cancer was used to establish cities and temple sites that were deliberately built at distances in round numbers and simple fractions from the Tropic of Cancer. Its timing marked the beginning of preparations for the reckoning of the annual Nile inundation.
2. Since the sun subtends an angle of 30 minutes at the Earth, the northern most part of the Sun extends 15 minutes north of the center of the Sun.
3. The exact location was determined by the northern-most latitude of the center of the Sun.
4. Syene (Elephantine Island) is located at 24 degrees 6 minutes North latitude. This was exactly 15 minutes north of the location of the Tropic of Cancer around -2800. A well dug at that location was used to determine the exact date and time when the sun stood directly overhead at the solstice so that no shadow was seen at the bottom of the well.