

THE LUXOR

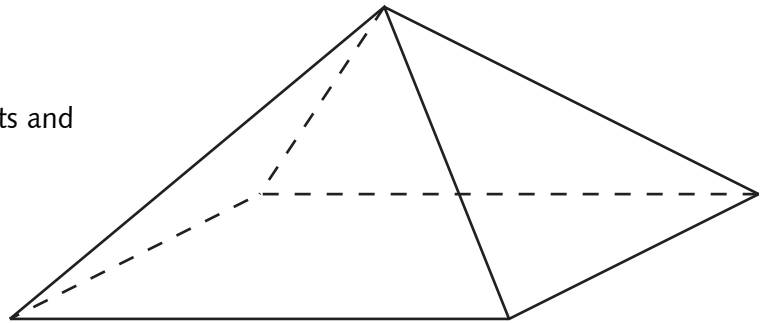
The Luxor Hotel in Las Vegas is modeled after the Great Pyramids of Egypt and boasts many world-record attributes. This activity investigates some of these awesome measurements. To begin, the building is 646 feet wide at the base and 350 feet high.

1. Place the dimensions in the diagram to the right.
2. Calculate the length of the following measurements and designate the answers on the diagram.

Slant Height = _____

Lateral Edge = _____

Diagonal of the Base = _____



3. The casino at the Luxor is 120,000 square feet. What percentage of the pyramid's base is dedicated to the casino?
4. The Luxor boasts the largest atrium (a vaulted open space within a building) in the world, with a measurement of 29 million cubic feet. What is the volume of the entire pyramid? Your answer should differ significantly from the volume of the atrium. How do you account for this discrepancy?
5. The Luxor claims that its outer walls are covered by 13 acres of glass. There are 43,560 square feet in an acre. How many square feet of glass cover the Luxor? Calculate the lateral area of the pyramid. Your answers should be close, but not exact. How do you account for the discrepancy?
6. The rooms have an outer wall made entirely of glass. As you might assume, these glass walls are slanted. What angle do the glass walls form with the floor? What geometric principle guarantees that this will be true for all rooms along the same side of the pyramid?



- 7) Rather than elevators, the Luxor has inclinator (elevators that rise at an oblique angle) along the lateral edges of the pyramid. At what angle to the ground do the inclinator travel?