Assignment

Write
Explain why the greatest number of sides of a cross-section of a right rectangular pyramid is four.

Remember
A pyramid is a polyhedron formed by connecting one polygonal face to several triangular faces. Similar to prisms, pyramids are classified by their bases. The triangular faces of a pyramid intersect at the vertex of a pyramid.

Practice

1. Mr. Anthony's class is studying the Great Pyramid of Giza, so he gives his students the assignment of creating a model of a pyramid. Cleopatra decides to build a right rectangular pyramid.

   a. Draw a sketch of a right rectangular pyramid.

   b. Cleopatra wants to have 2 floors in her model. She will have to add an interior floor to the model to divide the pyramid into 2 floors. Sketch the shape of this floor and explain how you determined your answer.

   c. Will the interior floor be the same size as the bottom floor of the pyramid? Explain your reasoning.

   d. Add the interior floor to your sketch in part (a).

   e. Cleopatra wants to have 3 rooms on the first floor of her model. She will have to add 2 interior walls to create the 3 rooms. Sketch the shape of these walls and explain how you determined your answer.

   f. Add the first floor interior walls to your sketch in part (a).

   g. Cleopatra wants to have 2 rooms of the same size on the second floor of her model. She will have to add 1 interior wall to create the 2 rooms. Sketch the shape of this wall and explain how you determined your answer.

   h. Add the second floor interior wall to your sketch in part (a).

Stretch
Describe all of the possible shapes that can be created by taking cross-sections of a cone.
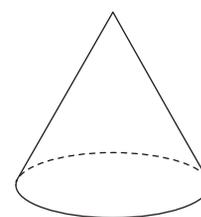
Review

1. Describe the cross-section that results from the intersection of a plane and a right rectangular prism as described in each problem.

   a. A plane intersects a right rectangular prism perpendicular to its base.

   b. A plane intersects a right rectangular prism parallel to its square base.

2. For each diagram, write and solve an equation to determine angle measures.

   a.

   $(2x - 125)°$

   $(250 - x)°$

   b.

   $x°$

   $(4x)°$
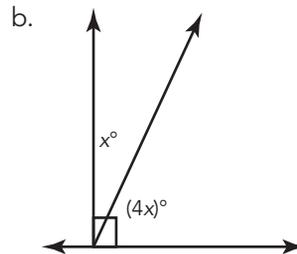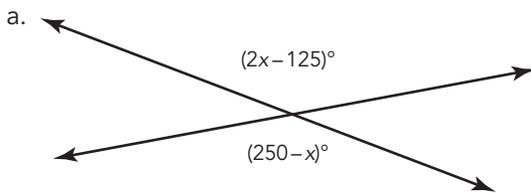
3. A magician is holding 4 playing cards – a jack, a queen, a king, and an ace. A spectator is asked to select a card, look at it, replace it, and then select a card again. Determine each probability.

   a. P(ace and ace) =

   b. P(king or queen) =