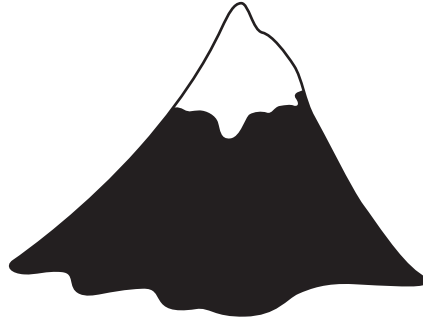## REVIEW EXAMPLE

1. A city has a population of 6,688 people. The area of the city is approximately 7.267 square miles.

   How many people per square mile live in the city?

   Solution: Find the quotient of 6,688 and 7.267 to find the number of people per square mile in the city.

   $$\text{People per square mile} = \frac{6688}{7.267} \approx 920 \text{ people per square mile}$$

2. This is a hand drawing of a mountain.

Explain which geometric shape could be used to estimate the total amount of Earth the mountain is made of.

Solution:

The most accurate shape that could be used to model the mountain is a cone because, to determine the total amount of Earth the mountain is made from, a 3-dimensional shape is needed, which is why a triangle is not as accurate as a cone.

3. A construction company is preparing 10 acres of land for a new housing community. The land contains large rocks that need to be removed. A machine removes 10 rocks from 360 square feet of land.

> **1 acre = 43,560 square feet**

About how many rocks will need to be removed from the 10 acres of land?

Solution:

If there are 10 rocks in 360 square feet, then we can predict that there will be about 10 rocks every 360 square feet of land.

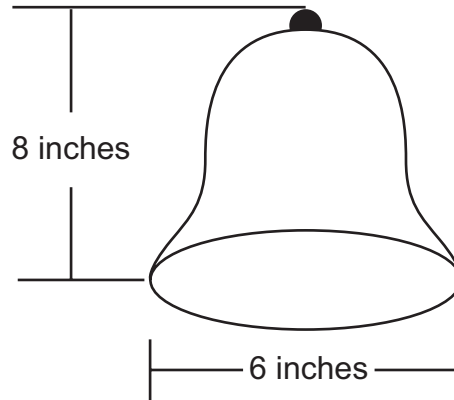We will need to determine how many 360 square feet are in 10 acres.

10(43,560) = 435,600, so 435,600 square feet are in 10 acres.

435,600/360 = 1,210, so 1,210 parcels of 360 square feet are on the 10 acres.

(1,210)(10) = 12,100

There should be about 12,100 rocks on the 10 acres of land.

4. A company needs to package this bell in a rectangular box.

What are the smallest dimensions (length, width, and height) the rectangular box can have so that the lid of the box can also close?

Solution:

Since the diameter of the base of the cone is 6 inches, the width and length of the box cannot be smaller than 6 inches. Since the height of the cone is 8 inches, then the height of the box cannot be smaller than 8 inches.

This gives us a rectangular box with these dimensions:

Length = 6 inches
Width = 6 inches
Height = 8 inches