Final Assessment Practice

1. Rancher Hermenze is building a rectangular corral. He is using one wall of his barn as one of the sides. The barn wall is 100 feet long, so the rancher only needs fencing along the other three sides. He has 240 feet of fencing.

The rancher wants the area of the corral to be as large as possible. What should he choose as the dimensions of the corral?

2. Rancher Ortiz is also building a rectangular corral. He is also using one wall of his barn as one of the sides. The barn wall is 80 feet long, so the rancher only needs fencing along the other three sides. He has 240 feet of fencing.

The rancher wants the area of the corral to be as large as possible. What should he choose as the dimensions of the corral?

3. Rancher Benedetto is also building a rectangular corral. He is also using one wall of his barn as one of the sides. The barn wall is 60 feet long, so the rancher only needs fencing along the other three sides. He has 240 feet of fencing.

The rancher wants the area of the corral to be as large as possible. What should he choose as the dimensions of the corral?

**Part 2: Swimming Pools**

The city of Einstein is building a public swimming pool. The architect of the pool is a geometer at heart. She decides to build the pool in the shape of a prism whose base is a regular pentagon. A pentagon is a five-sided polygon. The walls of the pool will be vertical. The pool will be 4 feet deep and will have a perimeter of 360 feet.

1. After the pool is built, the city will paint the inside of the pool. This means painting the five walls as well as the bottom. Find the total surface area of the inside of the pool. (Use 8919 square feet for the area of the base.)

2. Once the pool is painted, the city will fill it with water. Find the volume of water needed to fill the pool. Assume the pool is filled all the way to the top.

**Part 2: Swimming Pool**

The city of Pythagoras is also building a public swimming pool. Their architect of the pool is also geometer at heart. She decides to build the pool in the shape of a prism whose base is a regular hexagon. A hexagon is a six-sided polygon.

The walls of the pool will be vertical. The pool will be 4 feet deep and will have a perimeter of 360 feet.

1. After the pool is built, the city will paint the inside of the pool. This means painting the six walls as well as the bottom. Find the total surface area of the inside of the pool. (Use 9353 square feet for the area of the base.)

2. Once the pool is painted, the city will fill it with water. Find the volume of water needed to fill the pool. Assume the pool is filled all the way to the top.