Maximizing/Minimizing

1. Find two numbers \( n \) and \( m \) such that their difference is 15, and their product is minimized.

2. You have 12,000 ft of fencing, and you need to make 6 enclosures along a river (see diagram). Find the maximum total area.

3. You have a 3 foot by 3 foot square piece of cardboard. You want to make a box by cutting out the corners of the square piece of cardboard. Find the maximum volume your box can have.