A farmer wants to limit the area that one of his sheep can graze in. He hammers a stake into the ground in the bottom right portion of a large, fenced, pasture. The stake is 25 feet from the eastern border of the pasture and 15 feet from the southern edge. He ties one end of a 40 foot rope to the stake and the other end he attaches to a collar around the sheep's neck. Find the area of the pasture that the sheep can graze in. The pasture is square in shape with each side measuring 500 feet.