

Name _____

Homework 27
section 4.4

1. (7) A rectangular swimming pool is to be built with an area of 1800 square feet. The owner wants 5-foot wide decks along either side and 10-foot wide decks at the two ends. Find the dimensions of the smallest piece of property on which the pool can be built satisfying these conditions.

2. (6) A long rectangular sheet of metal, 12 in. wide, is to be made into a rain gutter by turning up two sides at angles of 120° to the sheet. How many inches should be turned up to give the gutter its greatest capacity?

3. (7) An art critic wishes to view a 6 foot tall painting which is hung so that the bottom is 7 feet above the ground. The critic knows that her best view of the painting will occur when the angle (θ) between her line of sight to the bottom of the painting and her line of sight to the top of the painting is at a maximum. If her eye level is 5 feet above the ground, how far from the wall should she stand in order to best view the painting?

Hint: express θ as $\beta - \alpha$ with β and α in terms of distance from the wall.

Second Hint: the answer to number 48 on page 210 is $\sqrt{4232} \approx 65.1$ ft.

