



5. Your iron works has contracted to design and build a 500-cubic foot, square-based, open top, rectangular steel holding tank for a paper company. The tank is to be made by welding thin stainless steel plates together along their edges. As the production engineer, your job is to find dimensions for the base and height that will make the tank weigh as little as possible. (This means to minimize the total area of the materials being used.)

6. On a given day, the flow rate  $F$  (cars per hour) on a congested roadway is  $F = \frac{v}{22+0.02v^2}$  where  $v$  is the speed of the traffic in miles per hour. What speed will maximize the flow rate on the road?

Answers to 6.3 CA #2

1. 50 and 25	2. $25 \times 50$ feet	3. 32 square units
4. 1352.786 meters	5. $10 \times 10 \times 5$ feet	6. 33.166 mph