Dr. ZABDAWI MATH 185/QUIZ III 10/28/94

Find the first derivative of : " Do not simplify your answer".

$$Y = \frac{\text{Tan}^2 2X.\text{CSC}3x}{\sqrt{X}.\text{COS}3x + \text{CSC}^2 3X}$$

Dr. ZABDAWI MATH 2450/EXAM V 12/5/01

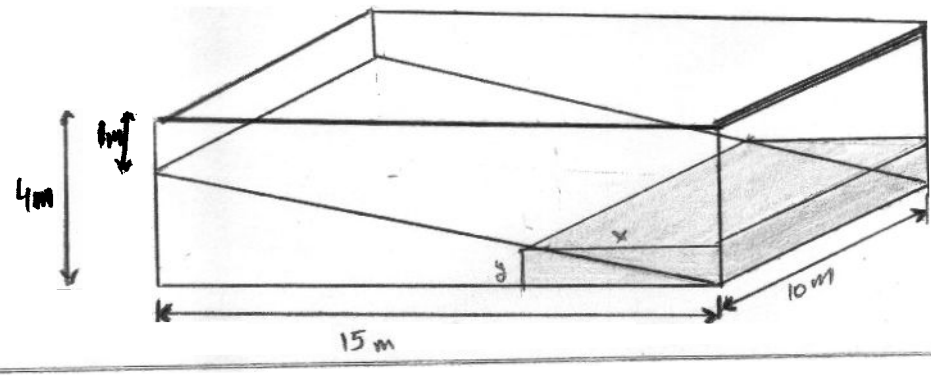
Name: Dr. ABDAWI St. #: Solution Key

**Show Your Work For Every Problem**

1) A rectangular swimming pool 15m long and 10m wide is 4m deep at one end and 1m deep at the other. with a constant drop from the shallow end to the deep end. Water is pumped into the pool at the rate of $0.05 m^3/\min$.

a) At what rate is the water rising when it is 3m deep at the deep end?

b) At what rate is the water expanding horizontally from the deep end when the horizontal water level is 10m from the shallow end? See diagram on the board.



Dr. ZABDAWI MATH 2450 2/15/94

Special Assignment (3 Points)

Suppose that the cone in Fig.(1) has a small opening (a leak) at the vertex through which water escapes at the rate of $0.08\sqrt{y}\ ft^3$ / min when its depth is y. Water is also running into the cone at a **constant rate** of c $ft^3$ / min. When the depth of water is 6.25 ft, the depth of the water is observed to be increasing at the rate of 0.02 ft/min.

Find the rate at which water is pouring into the cone, i.e. find c. Will the cone fill ?? Give a mathematical reason for your answer.