

# Integ. Apps – 1500

- (Calculator allowed) An empty rectangular pool 40 feet long by 12 feet wide by 5 feet deep is being filled with water. The pump slows down the longer it operates and delivers water at the rate of  $300\sqrt{24-t}$  gallons per hour where  $t$  represents the number of hours the pump operates. The pump will operate for 24 straight hours or until the pool is filled and then shuts down. If there are 7.5 gallons to a cubic foot of water, the amount of time that the pump operates