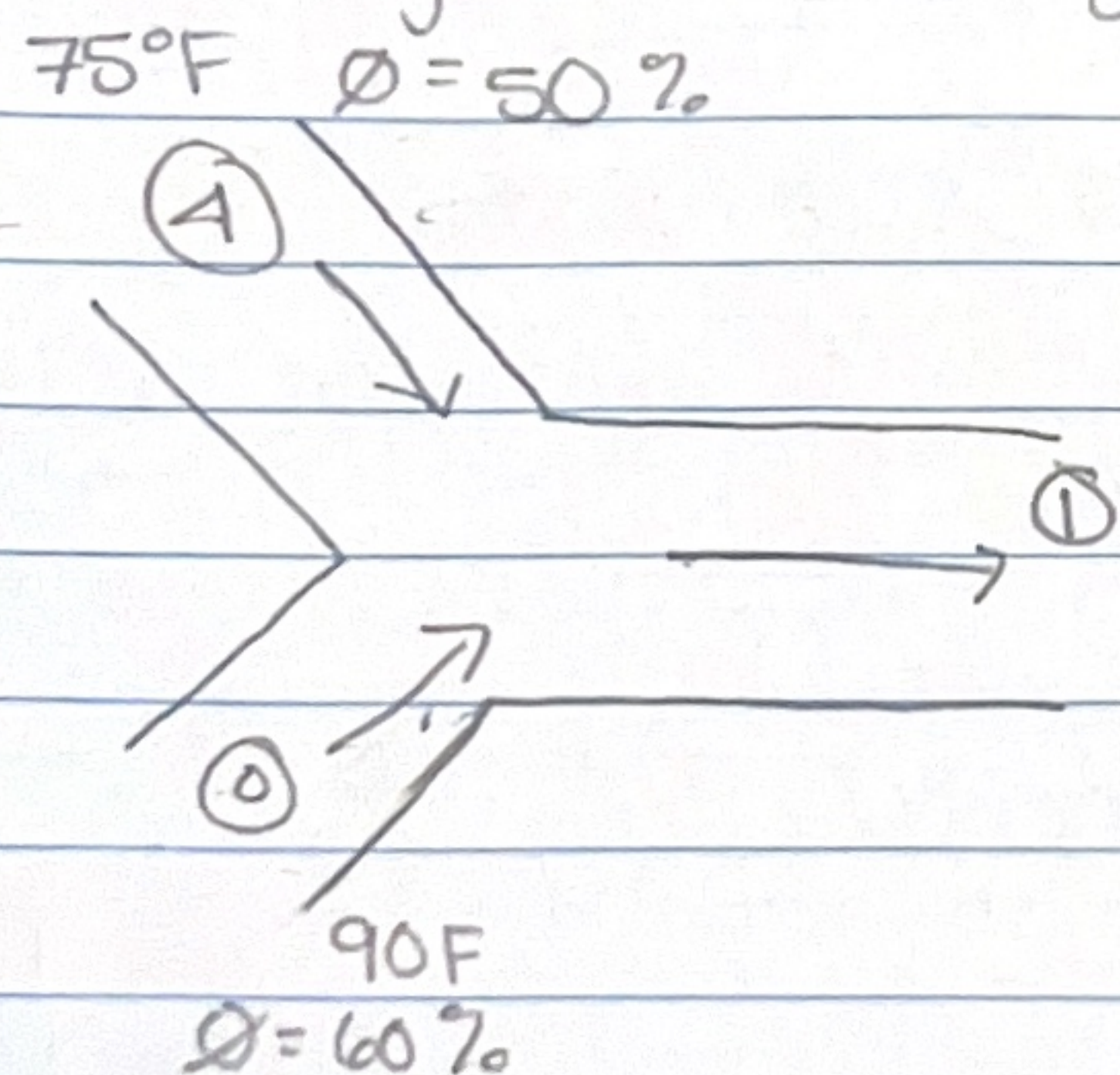


Exam 3

1.

Purpose: To calculate the quantity of air supplied; the dry bulb, and humidity ratio for each state; draw the processes in a psychrometric chart, and find the required capacity of the cooling and dehumidifying unit, as well as the amount of water drained.

Drawings and Diagrams



Sources

Module 16: Psychrometric Chart

Module 17: Air Conditioning Processes

Problem 14-85

Design considerations

No infiltration from outside air, constant humidity ratio at states 2 and 3. The cooling and dehumidifying process as well as the fan is ideal.

Data Given

$$Q_{in} = 72000 \text{ btu/hr} \quad \dot{V} = 500 \text{ CFM}$$

$$T_2 = T_3 = 75^\circ\text{F} \quad \phi_2 = \phi_3 = 50\%$$

$$T_o = 90^\circ\text{F} \quad \phi_o = 60\%$$



The Engineering Tool Box

www.EngineeringToolBox.com

PSYCHROMETRIC CHART

BAROMETRIC PRESSURE 29.921 inches of Mercury

