

Name: \_\_\_\_\_ Mob: \_\_\_\_\_

$m_v$	mass of w.v. in moist air	$P_v$	Partial pressure of w.v. in moist air	dbt	Dry bulb temp C	W	Specific humidity
$m_a$	mass of dry air in moist air	$P_a$	Partial pressure of dry air in moist air	dbt	Dry bulb temp C	h	Enthalpy of moist air
m	mass of moist air	P	Total/Barometric pressure of moist air	RH	Relative Humidity (%)	$\rho$	Density of dry air
		$P_{vs}$	Partial pressure of w.v. in saturated air	1mm Hg = 133Pa = 0.133KPa			

Property	GIVEN									FIND OUT											
	$m_v$	$m_a$	m	$P_v$	$P_a$	P	dbt	dbt	RH	$m_v$	$m_a$	m	$P_v$	$P_{vs}$	$P_a$	dbt	dbt	RH	W	h	$\rho$
Unit	kg	kg	kg	Kpa	Kpa	****	c	c	%	kg	kg	kg	KPa	KPa	KPa	c	c	%	***	kJ/Kg da	kg/m <sup>3</sup>
1	10	0.1	X	X	98.5	1.013 bar	X	X	X	X	X	?	?	X	X	X	?	X	? In Kg wv/Kg da	X	X
2	X	X	X	X	X	101.3 Kpa	35	X	60%	X	X	X	?	?	?	X	?	X	? In Kg wv/Kg da	X	?
3	X	X	X	X	X	1.013 bar	40	15	X	X	X	X	?	?	X	X	X	?	? In g wv/Kg da	?	X
4	X	X	X	X	X	760 mm Hg	X	14	55%	X	X	X	?	?	?	X	?	X	? In Kg wv/Kg da	?	?
5	X	X	5	X	X	101.3 Kpa	33	X	65%	?	?	X	?	?	X	X	?	X	? In g wv/Kg da	X	X
6	X	X	X	1.6	X	101.3 Kpa	X	X	70%	X	X	X	X	?	X	?	?	X	? In Kg wv/Kg da	?	X
7	X	X	X	20 mm Hg	X	760 mm Hg	X	X	X	X	X	X	X	X	X	X	?	X	? In Kg wv/Kg da	X	X
8	X	X	2	X	X	0.1 Mpa	35	X	60%	?	?	X	?	?	X	X	X	X	? In g wv/Kg da	?	?

$m = m_a + m_v$	$P = P_v + P_a$	dbt = saturation temperature at $P_{vs}$
$W = m_v/m_a = 0.622 * P_v/P_a = 0.622 * P_v/(P - P_v)$	$P_v =$ saturation pressure at dpt	dpt = saturation temperature at $P_v$
$RH = P_v/P_{vs}$	$P_{vs} =$ saturation pressure at dbt	
$h = 1.0216 * t + 2500 * W$	$\rho = P_a / (R_a * T) - T$ in Kelvin, $P_a$ in kPa; $R_a = 0.287$	