

ESCI 241 – Meteorology
Answers to Selected Exercises for Lesson 6
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2. Use the Clausius-Clapeyron equation to find the saturation vapor pressure at
 - a. $T = 1^{\circ}\text{C}$ **Answer:** 657 Pa
 - b. $T = 10^{\circ}\text{C}$ **Answer:** 1233 Pa
 - c. $T = 20^{\circ}\text{C}$ **Answer:** 2371 Pa
 - d. $T = 30^{\circ}\text{C}$ **Answer:** 4367 Pa

3. An air sample at standard sea level pressure, and with a volume of 1m^3 at 20°C , contains 7 grams of water vapor.
 - a. What is the vapor pressure? **Answer:** 946 Pa
 - b. What is the relative humidity? **Answer:** 39.9%
 - c. What is the absolute humidity? **Answer:** 7 g/m^3
 - d. What is the mixing ratio? **Answer:** 5.9 g/kg
 - e. What is the specific humidity? **Answer:** 5.8 g/kg
 - f. What is the dew-point temperature? **Answer:** 6°C