

ATM 209
Skew-T Practice #3

Using your Skew-T, solve the following problems:

1. $T = 16^{\circ}\text{C}$, $T_d = 9^{\circ}\text{C}$ at 980 mb

$w = 7.4 \text{ g/kg}$ $w_s = 11.7 \text{ g/kg}$ $\text{RH} = 63.2\%$ $\text{LCL} = 882 \text{ mb}$ $T_w = 12^{\circ}\text{C}$

$\theta = 17.7^{\circ}\text{C}$ $\theta_e = 39.8^{\circ}\text{C}$ $T_e = 37.7^{\circ}\text{C}$

T_{parcel} at 450 mb = -27.5°C T_{parcel} at 250 mb = -63.5°C

2. $T = 15^{\circ}\text{C}$, $T_d = -12^{\circ}\text{C}$ at 930 mb

$w = 1.6 \text{ g/kg}$ $w_s = 11.8 \text{ g/kg}$ $\text{RH} = 13.6\%$ $\text{LCL} = 615 \text{ mb}$ $T_w = 5^{\circ}\text{C}$

$\theta = 21^{\circ}\text{C}$ $\theta_e = 26^{\circ}\text{C}$ $T_e = 20^{\circ}\text{C}$

T_{parcel} at 500 mb = -30°C T_{parcel} at 800 mb = 3°C

3. $T = -7^{\circ}\text{C}$, $T_d = -15^{\circ}\text{C}$ at 810 mb

$w = 1.5 \text{ g/kg}$ $w_s = 2.8 \text{ g/kg}$ $\text{RH} = 53.6\%$ $\text{LCL} = 715 \text{ mb}$ $T_w = -9.5^{\circ}\text{C}$

$\theta = 9.5^{\circ}\text{C}$ $\theta_e = 14^{\circ}\text{C}$ $T_e = -3^{\circ}\text{C}$

Dewpoint_{parcel} at 750 mb = -16°C T_{parcel} at 750 mb = -13°C

Fill in the blanks below:

p	T	T_d	RH	LCL	T_w	θ	θ_e	T_e
700 mb	-12°C	-19°C	57%	625 mb	-13.5°C	16°C	20°C	-8.5°C
800 mb	0°C	-16°C	29%	620 mb	-5°C	18°C	22°C	4°C
850 mb	-7.5°C	-14°C	60%	765 mb	-9°C	5°C	9.5°C	-3°C
1000 mb	4°C	-5.5°C	50%	860 mb	0°C	4°C	11°C	11°C
750 mb	1.5°C	-13°C	33%	600 mb	6°C	25°C	31°C	7°C