

### Question 1

Show that the lifting condensation level (LCL) can be expressed as

$$Z_{LCL} = \frac{HH_v}{H - H_v} \ln \left( \frac{e_{s0}}{f_v p_0} \right)$$

### Question 2

Derive the psychrometric equation.

### Question 3

Show that the relative humidity can be expressed as  $e/e_s$ .

### Question 4

Derive the potential temperature for moist air.