

## Solutions - 6 VP - Ideal Solutions with two Volatile Components.

$$VP_{\text{soln}} = \underbrace{VP_{\text{solute A}}}_{\downarrow \chi_A V_{PA}} + \underbrace{VP_{\text{solute B}}}_{\downarrow \chi_B V_{PB}}$$

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At  $25.0^\circ\text{C}$  the VP of pure benzene ( $\text{C}_6\text{H}_6$ ) and toluene ( $\text{C}_6\text{H}_5\text{CH}_3$ ) are 95.1 mmHg and 28.4 mmHg. A solution of equal mol fractions of each - benzene and toluene, is prepared. What is the VP of each solute and the total VP?

moles of each = 0.5 mol. (total = 1 each is  $1/2$ ),

$$VP_{\text{benz}} = 0.5 \times 95.1 \text{ mmHg} = 47.55 \text{ mmHg}$$

$$VP_{\text{toluen}} = 0.5 \times 28.4 \text{ mmHg} = 14.2 \text{ mmHg}$$

$$\text{total } VP_{\text{soln}} = VP_{\text{benz}} + VP_{\text{toluen}} = 61.75 \text{ mmHg}$$

If masses of two volatiles then convert to moles.  
find VP of each and then add ☺☺