

Answer on Question#37334 – Chemistry – Other

The combined gas law states that

$$\frac{PV}{T} = \text{const, i. e.}$$
$$\frac{P_1V_1}{T_1} = \frac{P_2V_2}{T_2}$$

Hence

$$V_2 = \frac{P_1V_1T_2}{P_2T_1}$$

$T_1 = T_2$, so

$$V_2 = \frac{P_1V_1}{P_2}$$

$V_1 = 1425$ mL

$P_1 = 410$ mmHg

$P_2 = 690$ mmHg

$$V_2 = \frac{410 \cdot 1425}{690} = 847 \text{ mL}$$

Answer: 847 mL