Answer on question #43169, Chemistry, Physical Chemistry

Question:

$C_3H_8 + 5O_2 \longrightarrow 3CO_2 + 4H_2O$

If 5 L of C_3H_8 reacts, what volume of CO_2 could be produced?

a) 5/3 L
b) 1 L
c) 15 L
d) 45 L

Answer:

From the equation we see that $n(C_3H_8)/n(CO_2) = 1/3$

All these gases are under standard condition, so $V_m = 22.4L$

So, $n(C_3H_8) = 5L/22.4L = 0.223$ mol

Then $n(CO_2) = 0.223*3 = 0.669$ mol

$V(CO_2) = 0.669*22.4L = 15L$

So, an answer is c.