

Answer on Question 83708 in General Chemistry

$V(1) = ?$

$$c_{M1}(H_3PO_4) = 4.55 \text{ M}$$

$V(2) = 1.75 \text{ l}$

$$c_{M2}(H_3PO_4) = 2.11 \text{ M}$$

Find the mass of H_3PO_4 from $c_M = \frac{m}{M_r \times V}$

$$M_r(H_3PO_4) = 3 \times Ar(H) + Ar(P) + 4 \times Ar(O) = 3 + 31 + 4 \times 16 = 98$$

$$m(H_3PO_4) = c_M \times V \times M_r = 2.11 \times 1.75 \times 98 = 361.87 \text{ g}$$

$$V(1) = \frac{m}{M_r \times c_M} = \frac{361.87}{98 \times 4.55} = 0.81 \text{ l}$$

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