

Question #82876, Chemistry / General Chemistry | for completion

3.664 g sample of a monoprotic acid was dissolved in water. It took 20.27 mL of a 0.1578 M NaOH solution to neutralize the acid. Calculate the molar mass of the acid.

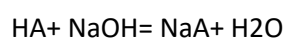
Solution.

$$m(\text{HA}) = 3.664 \text{ g}$$

$$V(\text{NaOH}) = 20.27 \text{ ml} = 0.02027 \text{ l}$$

$$C(\text{NaOH}) = 0.1578 \text{ mol/l}$$

$$M(\text{HA}) = ?$$



$$n(\text{HA}) = n(\text{NaOH}) = C \cdot V = 0.1578 \cdot 0.02027 = 0.00318 \text{ moles}$$

$$n(\text{HA}) = m/M, M(\text{HA}) = m/n = 3.664/0.00318 = 1152 \text{ g/mole}$$

Answer: $M(\text{HA}) = 1152 \text{ g/mole}$

Answer provided by www.AssignmentExpert.com