

## Acids and Bases



#5

10.16 g KOH is transferred to a 500.0 mL volumetric flask. The flask is filled with water. What is the pH of this solution?

### Solution

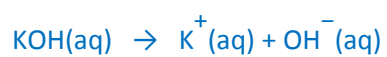
KOH:

$$10.16 \text{ g} = \frac{10.16 \text{ g}}{56.1 \frac{\text{g}}{\text{mol}}} = 0.181 \text{ mol}$$

$$\frac{0.181 \text{ mol}}{0.500 \text{ L}} = 0.363 \frac{\text{mol}}{\text{L}}$$

KOH:

= strong base, completely dissociated



$$\Rightarrow [\text{OH}^-] = 0.363 \text{ mol/L}$$

$$\Rightarrow \text{pOH} = 0.44$$

$$\Rightarrow \text{pH} = 13.56$$