Name of Acid: acetic acid (CH_3COOH)

Name of Base: sodium hydroxide (NaOH)

Name of Indicator: phenolphthalein ($C_{20}H_{14}O_4$)

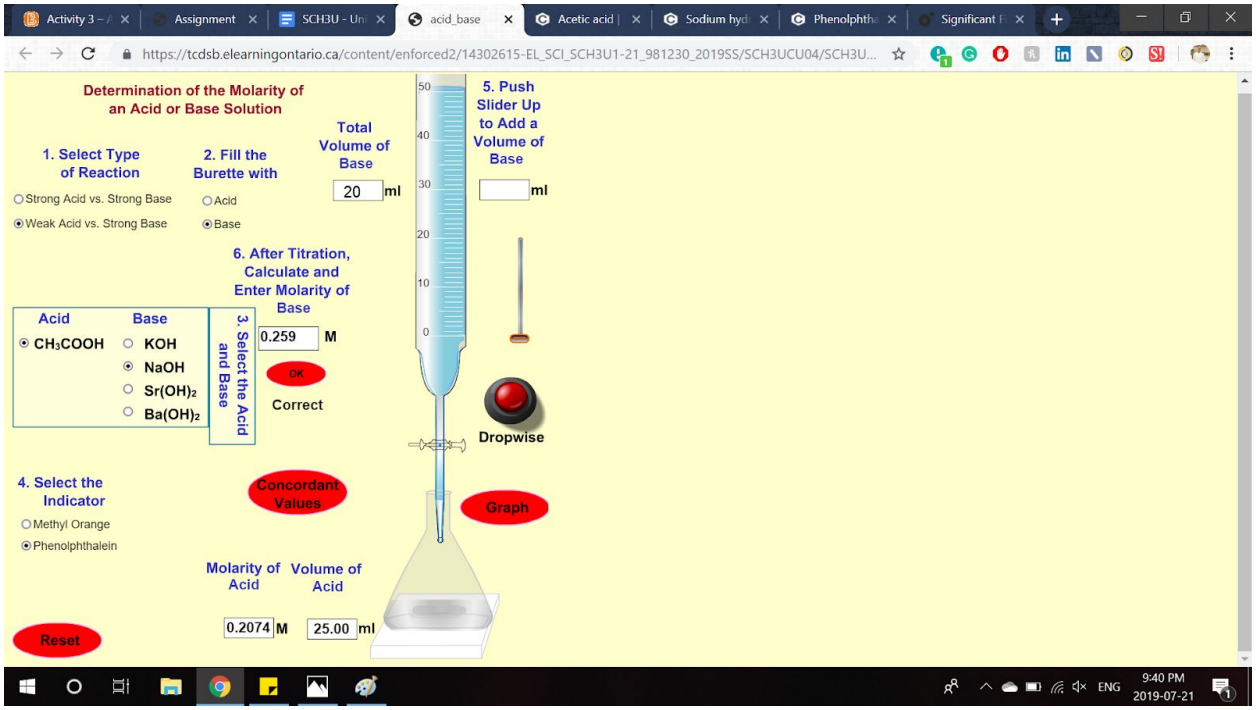
Molar Concentration of Acid: $C_A = 0.2074$ M

Volume of Acid: $V_A = 25.00$ mL

Volume of Base: $V_B = 20$ mL $= 0.02$ L

$$C_B = \frac{0.025 * C_A - 10^{-7} * (0.025 - V_B)}{V_B}$$

$$C_B = \frac{0.025 * 0.2074\ M - 10^{-7} * (0.025 - 0.02\ L)}{0.02\ L} = 0.259249975 \approx 0.259\ M$$



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