



1.00 M

0.375 mol  $\text{H}^+$  = 0.375 mol  $\text{OH}^-$

1.00 M

500 mL

add 375 mL

$$0.500 \text{ mol} - 0.375 \text{ mol} = \frac{.125 \text{ mol } \text{CH}_3\text{COOH}}{0.875 \text{ L}} = 0.143 \text{ M}$$

$$\frac{0.375 \text{ mol}}{0.875 \text{ L}} = 0.429 \text{ M } \text{CH}_3\text{COO}^-$$

Henderson-Hasselbalch Equation

$$\text{pH} = \text{p}K_a + \log \frac{[\text{A}^-]}{[\text{HA}]}$$

$$\text{pH} = 4.74 + \log \frac{.429}{.143} = 5.22$$

