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Data:

	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Trial 6
Amount of vinegar	10mL	10mL	10mL	10mL	10mL	10mL
Initial NaOH	1mL	9.9mL	18.0mL	26.2mL	34.4mL	36.65mL
Final NaOH	9.9mL	18.0mL	26.2mL	34.4mL	42.65mL	44.6mL

Observations:

First trial turned dark pink, too much NaOH. Accidentally let out a stream of NaOH near the endpoint. Trial 2 was a light pink, better than trial 1. Trial 3 was terrible. I accidentally added a stream of NaOH. Trial 4 was clear. half a drop turned it pink. Trial 5 was also a drop over from being clear and pink. Trial 6, you can barely tell that it is pink. If you look really close, you can see a very faint pink. It is really close to perfect. With some distilled water.

Analysis: $\text{CH}_3\text{COOH} + \text{NaOH} \rightarrow \text{CH}_3\text{COONa} + \text{H}_2\text{O}$

Trial 1:

$$9.90\text{mL} - 1.00\text{mL} = \underline{8.90\text{mL NaOH used}}$$

$$1.00\text{M} * 8.90\text{mL} / 1000 = 0.0089 \text{ mol NaOH}$$

$$0.0089 \text{ mol} / 10\text{mL} / 1000 = \underline{0.890\text{M Acetic Acid}}$$

Trial 2:

$$18.0\text{mL} - 9.9\text{mL} = \underline{8.1\text{mL}}$$

$$(8.1/1000)/(10\text{mL}/1000) = \underline{0.81\text{M}}$$

Trial 3:

$$26.2\text{mL} - 18.0\text{mL} = \underline{8.2\text{mL}}$$

$$(8.2\text{mL}/1000)/(10\text{mL}/1000) = \underline{0.82\text{M}}$$

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