

Solutions

Each answer shows the steps, then the **result**.

2.1

- How much added acid or base it can neutralize before the pH changes much

2.2

- The ratio sets the pH

2.3

- The more concentrated one

3.1 B

- the amounts (moles) of the components

3.2

(a)

- Same pH (same ratio and pK_a)

(b)

- Buffer P has the greater capacity — more moles of both components, so it can absorb more added acid or base

3.3

- With comparable amounts of both, there is plenty of conjugate base to neutralize added acid **and** plenty of weak acid to neutralize added base, so it resists change in either direction most effectively