Advanced pH and pOH Calculations

**\*When an acid and a base are mixed together they neutralize each other through the reaction of H3O+ with OH-. If the mol H3O+ = mol OH- the solution will have a pH of 7. If not, the moles of H3O+ or OH- in excess will determine the pH and pOH of the resulting solution\***

1. What is the pH of the resulting solution when 50.0 mL of 0.200 M NaOH is mixed with 30.0 mL of 0.250 M HCl?
2. Calculate the pH if 1.25 L of 0.300 M KOH is added to 0.500 L of 0.0900 M H**2**SO4.
3. Calculate the pOH if 0.0300 L of 0.400 M Ca(OH)2 is reacted with 0.250 L of 0.125 M HBr.
4. How many grams of NaOH must be added to 0.800 L of 0.0400 M HBr to change the pH to 7.00? (assume the NaOH does not change the volume of the solution)

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