Name _____ Block: _____ Date: _____

Chemistry 12

MIXING STRONG ACIDS & BASES

58. Calculate the pH resulting from mixing 50.0 mL of 0.150 M NaOH with 50.0 mL of 0.200 M HCl.

59. Calculate the pOH resulting from mixing 75.0 mL of 0.200 M HBr with 225.0 mL of 0.150 M KOH.

60. Calculate the pH resulting from mixing 25.0 mL of 0.0420 M $Ba(OH)_2$ with 125.0 mL of 0.0120 M HCl.

61. Calculate the pOH resulting from the mixture of 50.0 mL of 0.0185 M $Sr(OH)_2$ with 35.0 mL of a solution containing 0.130 g of HCl.

62. Calculate the pH produced when 100.0 mL of a solution containing 5.00 g of KOH is mixed with 100.0 mL of a solution containing 6.00 g of HCl?

63. What is the pOH of the solution produced by mixing 250.0 mL of a solution containing 6.08 g of $Sr(OH)_2$ with 100.0 mL of a solution containing 8.09 g of HBr?

64. Calculate the pH which results when 0.450 g of LiOH are added to 200.0 mL of water containing 9.50 g of HI. Assume the volume of the final mixture is 200.0 mL.

In the next three exercises assume that no volume change occurs.

65. A chemist had 2.000 L of a 0.00120 M KOH solution. What mass of HCl(g) would have to be added to the KOH solution to produce a solution having a pH of 10.875?

66. What mass of LiOH must be added to 750.0 mL of 0.0550 M HCl to create a mixture having a pH of 2.500?

67. What mass of $Ca(OH)_2$ must be added to 500.0 mL of 0.0150 M HBr to create a solution with pH = 2.750?

68. Calcium hydroxide has a low solubility: $Ca(OH)_2(s) \rightleftharpoons Ca^{2+} + 2\ OH^-$; $K_{sp} = 3.88 \times 10^{-5}$.
    a) What is the pH of a saturated solution of $Ca(OH)_2$?
    b) A saturated solution of $Ca(OH)_2$ contains several grams of $Ca(OH)_2(s)$ on the bottom of a 1 L container. Why would the $Ca(OH)_2(s)$ dissolve if HCl were added to the solution?