

p621

31. Nitric =  $\text{HNO}_3$  1  $\text{H}^+$      $\text{KOH} = 1$   $\text{OH}^-$

$$M_a V_a i = M_b V_b i$$

$$M_a (20.00)(1) = (0.1000)(43.33)(1)$$

$$M_a = \boxed{0.220 \text{ M}} \quad (2)$$

32. Ammonia =  $\text{NH}_3$  (one  $\text{OH}^-$  equivalent)

$\text{HCl} = 1$   $\text{H}^+$

$$(0.5900)(49.90)(1) = M_b (25.00)(1)$$

$$M_b = \boxed{1.178 \text{ M}} \quad (2)$$

p630ff

42. Acid  $[H^+] > 1 \times 10^{-7} M$

Base  $[H^+] < 1 \times 10^{-7} M$

Neutral  $[H^+] = 1 \times 10^{-7} M$

46. a) acid

c) base

b) base

d) acid

52. Strong is totally ionized, weak only partially ionized

54. a) weak

c) weak

b) strong

d) weak

55. a) strong

c) weak

b) weak

d) strong

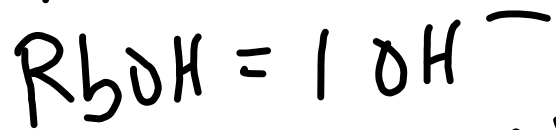
63. A is more acid

$$\frac{A}{B} = \frac{1 \times 10^{-2}}{1 \times 10^{-5}} = 1 \times 10^3 \quad \boxed{1000 \text{ times}} \quad (2)$$

70. When base is added, the weak acid reacts to counter it  
When acid is added, the weak base reacts to counter it

73. BB is blue above 7.5  
Ph is colorless below 8.5  $\rightarrow$  about pH 8  
(2)

76. From vertical section  
pH of center is  $\boxed{5}$  (2)



$$M_a V_a i = M_b V_b i$$

$$M_a (20.00)(1) = (0.3020)(33.21)(1)$$

$$M_a = 0.5015 \text{ M} \quad (5)$$



$$(0.4122)(14.76)(1) = M_b (35.00)(1)$$

$$M_b = 0.1738 \text{ M} \quad (5)$$

$$\frac{X}{32} \times 15 = \text{grade}$$