36. this is a buffer, so:

$pH = pK_a + \log \frac{[A^-]}{[HA]}$ the $pK_a = -\log K_a = -\log (6.5 \times 10^{-5}) = 4.19$

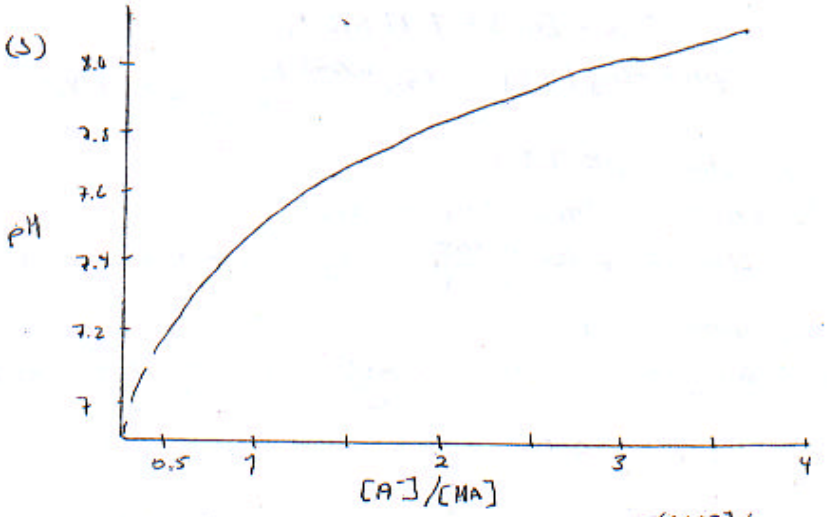
the deviations of pH upon addition of 0.005 M H_3O^+ or ~~and~~ ^-OH are: $pH = pK_a + \log \frac{[A^-] \pm 0.005}{[HA] \pm 0.005}$

	[HA]	[A⁻]	$[A^-]/[HA]$	pK_a	pH	ΔpH
(a)	0.5	0.5	1.0	4.19	4.19	±0.009
(b)	1.0	0.5	0.5		3.89	±0.007
(c)	0.5	1.0	2.0		4.49	±0.007
(d)	1.0	1.0	1.0		4.19	±0.004
(e)	1.0	0.1	0.1		3.19	±0.024
(f)	0.1	1.0	10.		5.19	±0.024

38. (a) $pH = pK_a + \log \frac{[A^-]}{[HA]}$ when $[A^-] = [HA]$, $pH = pK_a = 7.52$

HClO has pK_a of 7.52.

(b)



(c) $pH: 7.71 = pK_a + \log [A^-]/[HA] = 7.52 + \log [ClO^-]/[HClO]$

$[ClO^-]/[HClO] = 10^{0.19} = 1.55$