Buffer calculations

Calculate the pH of a buffer solution where [H2S] = 0.0515 mol L-1, [HS-] = 0.105 mol L-1 ,pKa (H2S) = 6.98

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| **Using Ka****OR**Ka = [A-][H3O+] [HA]H2S + H2O ⇄ HS-  + H3O+pKa = - log Ka6.98 = - log Kainverse log – 6.98 = Ka1.047 x 10-7 = KaKa = [HS-][H3O+] [H2S]1.047 x 10-7 = [0.105][H3O+] [0.0515](1.047 x 10-7) ( 0.0515) = [H3O+] 0.1055.135 x 10-8 =[H3O+]pH = - log [H3O+]pH = - log 5.135 x 10-8 pH = 7.289***Answer: 7.29***Round up at the very end only!Answer to 3 sig figsUNITS where relevant | **Using Kb**Kb = [BH+][OH-] [HB]HS-  + H2O ⇄ H2S + OH- pKa = - log Ka6.98 = - log Kainverse/shift log – 6.98 = Ka1.047 x 10-7 = KaKb = Kw KaKb = 1 x 10-14 1.047 x 10-7Kb = 9.551 x 10-8Kb = [H2S][OH-] [HS-]9.551 x 10-8 = (0.0515) [OH-] 0.1051.947 x 10-21 =[OH-]Kw = [H3O+] [OH-]1 x 10-14 = [H3O+] (1.947 x 10-7 ) 5.135 x 10-8 =H3O+]pH = - log [H3O+]pH = - log 5.135 x 10-8 pH = 7.289***Answer: 7.29***Round up at the very end only!Answer to 3 sig figsUNITS where relevant | **Using Henderson-Hasselbalch equation****OR**pH = pKa + log [conjugate base] [acid]H2S + H2O ⇄ HS-  + H3O+­pH = 6.98 + log 0.105 0.0515pH = 6.98 + log 2.038pH = 6.98 + 0.3093pH = 7.289***Answer: 7.29***Round up at the very end only!Answer to 3 sig figsUNITS where relevant<https://www.chemical-minds.com> |

Which method above would you choose?