Chem 130, Eppley

Quiz 9: Acids Bases and Band Theory of Solids
(10 pts)

1. a. Write an equation for HCO_3^- acting as a base in aqueous solution. (2 pt)

   b. What is the pKa or pKb that describes this equation? Explain clearly where you got your number. (3 pt)

2. Draw a picture that represents the band theory description of a p-doped semiconductor. Label the valence band, the conduction band, and the band gap and explain how that band gap differs from that of a pure semiconductor. (5 pt)

Potentially useful table stuff:

			Ka	pKa
carbonic	1	$H_2CO_3(aq) \rightleftharpoons H^+(aq) + HCO_3^-(aq)$	4.3×10^{-7}	6.37
	2	$HCO_3^-(aq) \rightleftharpoons H^+(aq) + CO_3^{2-}(aq)$	4.7×10^{-11}	10.33