CONCEPT: EQUILIBRIUM CONSTANT CALCULATIONS

- When _____ equilibrium concentrations of a reaction are known, _____ can be calculated.
  - □ K can also be used to calculate _____ missing equilibrium concentration.

EXAMPLE: What is the value of the equilibrium constant (Kc) for the reaction below if the equilibrium mixture contains 0.255 M of CH_4, 1.10 M CO_2, 0.388 M CO and 0.250 M H_2.

$$CH_4\,(g) + CO_2\,(g) \rightleftharpoons 2\,CO\,(g) + 2\,H_2\,(g)$$

PRACTICE: The reaction: 2 NO (g) + Br_2 (g) $\rightleftharpoons$ 2 NOBr (g), has a Kp of 2.5 x 10^2 at 35ºC. Calculate the equilibrium concentration of NOBr, if equilibrium concentrations of NO and Br_2 are 0.2 atm and 0.050 atm, respectively.

CONCEPT: EQUILIBRIUM CONSTANT CALCULATIONS

PRACTICE: For the reaction below, Kc = 1.5 at a constant temperature. A 3.2 L flask contains an equilibrium mixture of 3 compounds: 3.7 g of NH_4HS, 70. g of NH_3 and unknown amount of H_2S. What is the mass (grams) of H_2S produced at equilibrium?

$$NH_4HS\ (s) \rightleftharpoons NH_3\ (g) + H_2S\ (g)$$