- You are given two glass jugs. Each contains the same volume, V, of liquid. One jug contains pure alcohol, and the other jug contains pure water. A modest quantity, Q, of water is poured from the water jug into the alcohol jug, which is then thoroughly mixed. The same modest quantity, Q, of (now diluted) alcohol is then poured back into the water jug to equalize the volumes of the jugs at their initial levels. Which one of the following is true and why?

  (A) The concentration of alcohol in the alcohol jug is **higher** than the concentration of water in the water jug.

  (B) The concentration of alcohol in the alcohol jug is **lower** than the concentration of water in the water jug.

  (C) The concentration of alcohol in the alcohol jug is **the same** as the concentration of water in the water jug.

- How many degrees (if any) are there in the angle between the hour and minute hands of a clock when the time is a quarter past three?

- Inside of a dark closet are five hats: three blue and two red. Three smart men go into the closet, and each selects a hat in the dark and places it unseen upon his head. Each man knows both that the closet contains three blue hats and two red and that the other two have the same knowledge.

  Once outside the closet, no man can see his own hat. The first man looks at the other two, thinks, and says, "I can't tell what color my hat is." The second man hears this, looks at the other two, and says, "I cannot tell what color my hat is either." The third man is blind. The blind man says, "Well, I know what color my hat is." What color is his hat, and how does he know?