1. Which of the expressions below correspond to the statement: the probability of rain on Monday?

(1) Pr(rain)
(2) Pr(rain|Monday)
(3) Pr(Monday|rain)
(4) Pr(rain, Monday)/ Pr(Monday)

2. Which of the following statements corresponds to the expression: Pr(Monday|rain)?

(1) The probability of rain on Monday.
(2) The probability of rain, given that it is Monday.
(3) The probability that it is Monday, given that it is raining.
(4) The probability that it is Monday and that it is raining.

3. Which of the expressions below correspond to the statement: the probability that it is Monday, given that it is raining?

(1) Pr(Monday|rain)
(2) Pr(rain|Monday)
(3) Pr(rain|Monday) Pr(Monday)
(4) Pr(rain|Monday) Pr(Monday)/ Pr(rain)
(5) Pr(Monday|rain) Pr(rain)/ Pr(Monday)

4. Suppose there are two globes, one for Earth and one for Mars. The Earth globe is 70% covered in water. The Mars globe is 100% land. Further suppose that one of these globes—you don't know which— produced a "land" observation. Assume that each globe was equally likely. Show that the posterior probability that the globe was the Earth, conditional on seeing "land" (Pr(Earth|land)), is 0.23.