Q. A bag contains 4 red and 3 black balls. A second bag contains 2 red and 3 black balls. One bag is selected at random. If from the selected bag one ball is drawn, then what is the probability that the ball drawn is red?

I could easily get this wrong, but I’ll have a stab at it anyway.

7 balls in bag 1, 4 of which are red (4/7)

5 balls in bag 2, 2 of which are red (2/5)

Add these (rather than multiply) because one doesn’t depend on the other. So (4/7)+((2/5)=34/35.

Multiply that result by 1/2 because there’s a 50% chance of which bag is chosen.

I’m going for 17/35. That result actually looks about right, but I’m uncertain whether my method choice is flawed.