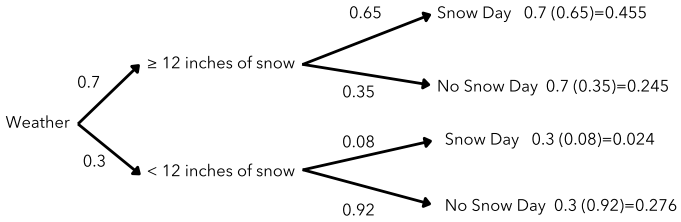
1. a. $\frac{81}{10,000} = 0.0081$
   b. Yes. Whether or not the first tile is an A does not change the probability that the second tile is an A.
   c. $\frac{72}{9,900} = 0.0073$
   d. No. Whether or not the first tile is an A does change the probability that the second tile is an A.

2. $\frac{16}{27} \times \frac{15}{26} \approx 0.342$

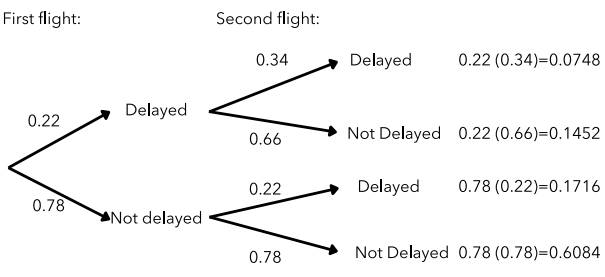
3. a.



   b. 0.455 + 0.024 = 0.479
   c. $\frac{0.455}{0.479} \approx 0.950$

4. a. No, $P(\text{Made a New Year's resolution and 18-29 years old}) \neq P(\text{Made a New Year's resolution}) \cdot P(\text{18-29 years old})$. $0.079 \neq (0.30)(0.16)$.
   b. The probability of making a New Year's resolution given they are 18-29 years old is $\frac{0.079}{0.16} \approx 0.494$, which is more likely than the probability of making a New Year's resolution for all survey responders of 0.30.

5. a. No, the probability of his second flight being delayed given that his first flight is delayed is 0.34 which is greater than the probability that an isolated United flight is delayed, which is 0.22.
   b. 0.3916. See tree diagram.



   c. Three trips to LA and back represents six sets of connecting flights. $P(\text{at least 1}) = 1 - P(\text{none}) = 1 - (0.6084)^6 \approx 0.9493$.

6. 42.1%

7. D

8. D