

Conditional Probability

1. A bag of sweets contains 3 red sweets and 4 yellow sweets. Tom takes one sweet without looking and then passes the bag to Harry who also chooses a sweet without looking.

If Tom chooses a red sweet, what is the probability that Harry chooses:

- a. a red sweet $\frac{2}{6}$ or $\frac{1}{3}$ b. a yellow sweet? $\frac{4}{6}$ or $\frac{2}{3}$

2. A bag contains 11 lettered tiles spelling out the word MATHEMATICS. A tile is taken out without being replaced, then another tile is taken out.

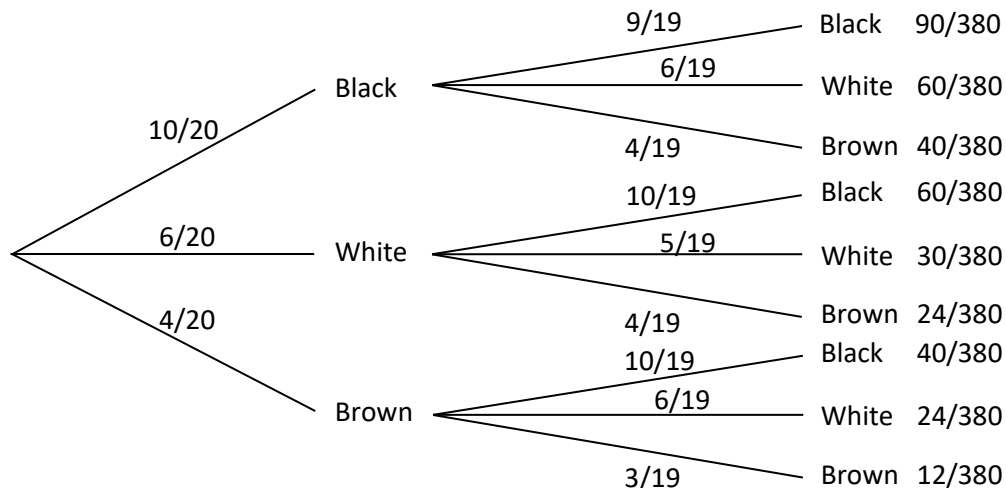
What is the probability of choosing:

- a. Two T's $\frac{1}{55}$ b. E followed by I $\frac{1}{110}$
 c. A followed by M $\frac{2}{55}$ d. T and H (in any order)? $\frac{2}{55}$

3. A draw contains 20 socks. 10 are black, 6 are white and 4 are brown.

One sock is chosen randomly without replacement, followed by a second sock being chosen randomly.

- a. Put this information into a probability tree diagram.



What is the probability of choosing:

- a. 2 black socks $\frac{90}{380}$ b. a white sock and a brown sock $\frac{48}{380}$
 c. two matching socks $\frac{132}{380}$ d. two different socks? $\frac{248}{380}$