

Homework 4 Solutions
Chapter 7: #1, 17, 26, 33
Chapter 7: #47, 85

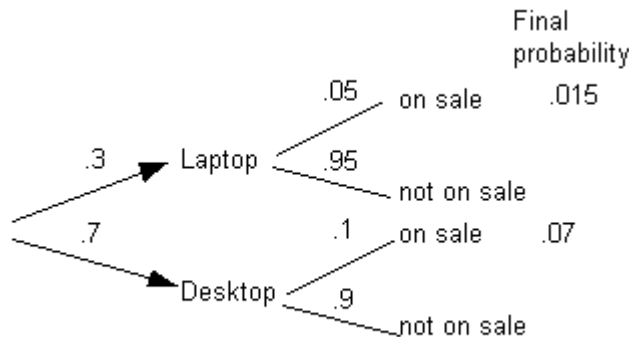
Assigned Wed, October 21

- 7.1 Random Circumstance: Flight arrival time for a randomly selected flight on one of the top ten U.S. airlines during that time period.
- Flight arrives on time (or early) with probability .761
 - Flight arrives late with probability .239
- 7.17 a. BY, BS, BA, YS, YA, SA.
 b. 1/6.
- 7.26 a. The approximate probability = $22/190 = .1158$ that a randomly selected person will pick the number 3.
 b. The approximate probability = $(2+6)/190 = 8/190 = .0421$ that a randomly selected person will pick either 1 or 10.
 c. The approximate probability = $(2+22+18+56+14)/190 = 112/190 = .5895$ that a randomly selected person will pick an odd number.
- 7.33 a. Not getting the same number on both dice.
 b. 5/6.

Assigned Fri, October 23,

- 7.47 The tree diagram is below. The desired probability is the sum of the “final probabilities” for the two paths that end in “on sale.”
- $$\begin{aligned}
 P(\text{on sale}) &= P(\text{laptop on sale}) + P(\text{desktop on sale}) \\
 &= P(\text{laptop}) P(\text{on sale} \mid \text{laptop}) + P(\text{desktop}) P(\text{on sale} \mid \text{desktop}) \\
 &= (.3)(.05) + (.7)(.1) = .015 + .070 = .085.
 \end{aligned}$$

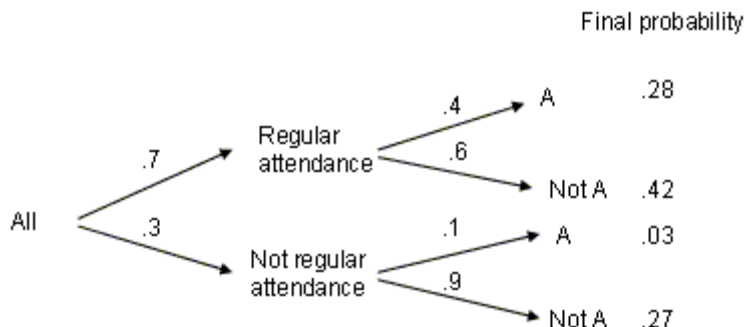
Figure for Exercise 7.47



- 7.85 $P(\text{regularly attend} \mid A) = \frac{P(\text{regularly attend and get A})}{P(\text{get A})} = \frac{.28}{.31} = .903$. This is an application of Rule 4 for conditional probability. To find the numerator and denominator values, you can use a

tree diagram or a hypothetical hundred thousand table. Here are the results using these methods:

Tree diagram for Exercise 7.85



From the tree diagram, $P(\text{regularly attend and get A}) = .28$
 $P(A) = .28 + .03 = .31$

The hypothetical hundred thousand table is as follows.

Attendance	A	Not A	Total
Regular	28,000	42,000	70,000
Not regular	3,000	27,000	30,000
Total	31,000	69,000	100,000

You can read the result directly from this table. $P(\text{regularly attend} | A) = \frac{28,000}{31,000} = .903$.