

Just Checking Answers:

1. $.76$

2. $.76(.76) = .576$

3. $(1-.76)(1-.76)(.76) = .043776$

4. $1 - (1-.76)^5 = .9992$

Day 2 Notes - Probability and/or Practice

1. Suppose that 40% of cars in B'ville are manufactured in the United States, 30% in Japan, and 10% in Germany. The rest are from other countries. If cars are selected at random, find the probability that:

- a. a car is manufactured in one of the other countries.

$$100\% - 40\% - 30\% - 10\% = 20\%$$

- b. you pick two cars in a row from Japan.

$$P(J \cap J) = .30 * .30 = .09$$

↑
and

- c. the first US car is the third one you pick.

$$P(\text{Not US} \cap \text{Not US} \cap \text{US}) = (.6)(.6)(.4) = .144$$

└ 1-.4=.6

- d. none of three cars came from Germany.

$$P(\text{not G} \cap \text{not G} \cap \text{not G}) = (.9)(.9)(.9) = .729$$

└ 1-.1=.9

- e. at least one of three cars is made in Germany.

$$1 - P(\text{none from G}) = 1 - .729 = .271$$

2. When a person is selected at random from a very large population, the probability that the selected person is right-handed is 0.82. If three people are selected at random, what is the probability that

- a. they are all right-handed?

$$P(R \cap R \cap R) = (.82)(.82)(.82) = .551$$

- b. none of them is right-handed.

$$P(L \cap L \cap L) = (.18)(.18)(.18) = .006$$

└ 1-.82=.18

3. According to the website www.census.gov, based on the 2010 US population, the probability that a randomly selected male is 65 or older is 0.114, and the probability that a randomly selected female is 65 or older is 0.146. (Round to 3 decimal places)

- a. If a male and a female are selected at random, determine the probability that both people are 65 or older. (Hint: Use the multiplication rule for independent events)

$$P(M \geq 65 \text{ and } F \geq 65) = (.114)(.146) = .016$$

- b. If two males are randomly selected, what's the probability that both are 65 or older?

$$P(M \geq 65 \text{ and } M \geq 65) = (.114)(.114) = .013$$

- c. If two females are randomly selected, what's the probability that neither of them are 65 or older?

$$P(F < 65) = 1 - .146 = .854$$
$$P(F < 65 \text{ and } F < 65) = (.854)(.854) = .729$$

Homework

Day 2 Homework WKShT
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Day 2 Homework Answers:

1. $1/12$
2. $1/32$; I would be suspicious because the likelihood of this happening is pretty low (3%)
3. $1/216$; I would be very suspicious because the likelihood of this happening is extremely low (.5%)
4. .2905
- 5a. Yes because one spinner result does not affect the next.
 - b. .0625
 - c. .004
 - d. .237