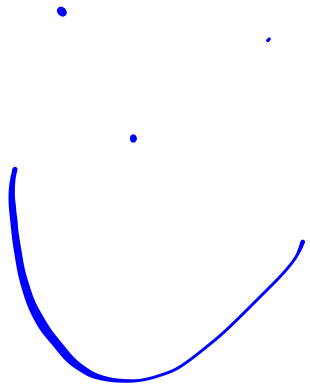
Homework Review - 13.7 and 13.8



100% of male CV students over 6 feet tall wear shoes that are at least size 9. My friend wears shoes that are size 10. Is he over 6 feet tall? Why or why not?

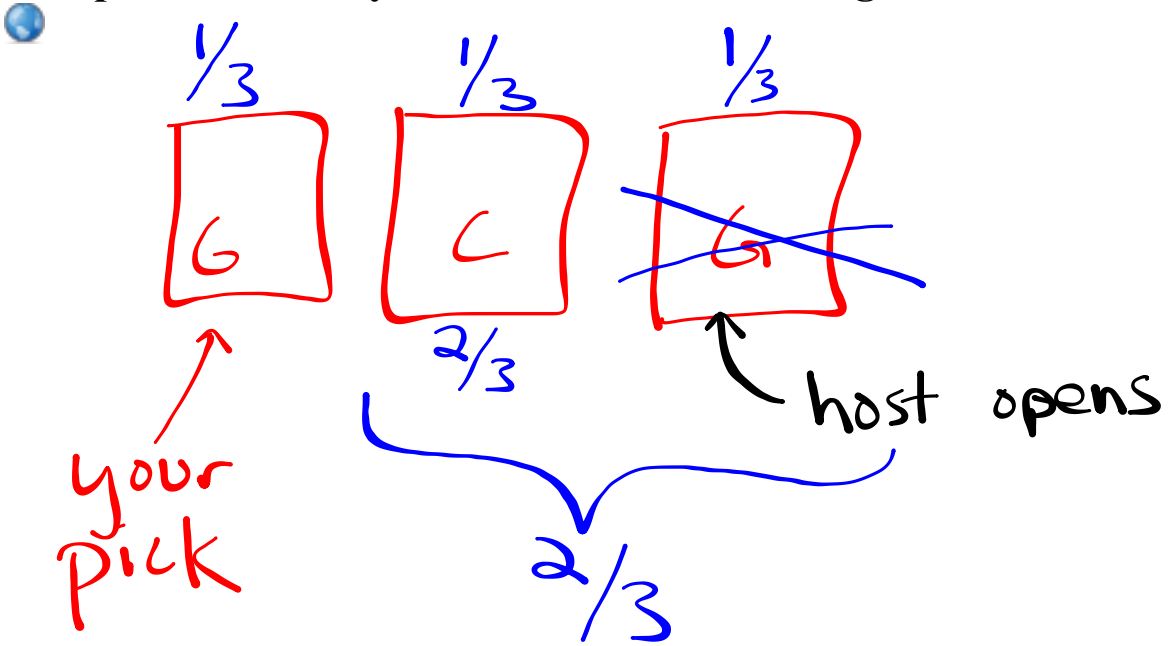
All students > 6 feet wear shoes ≥ 9

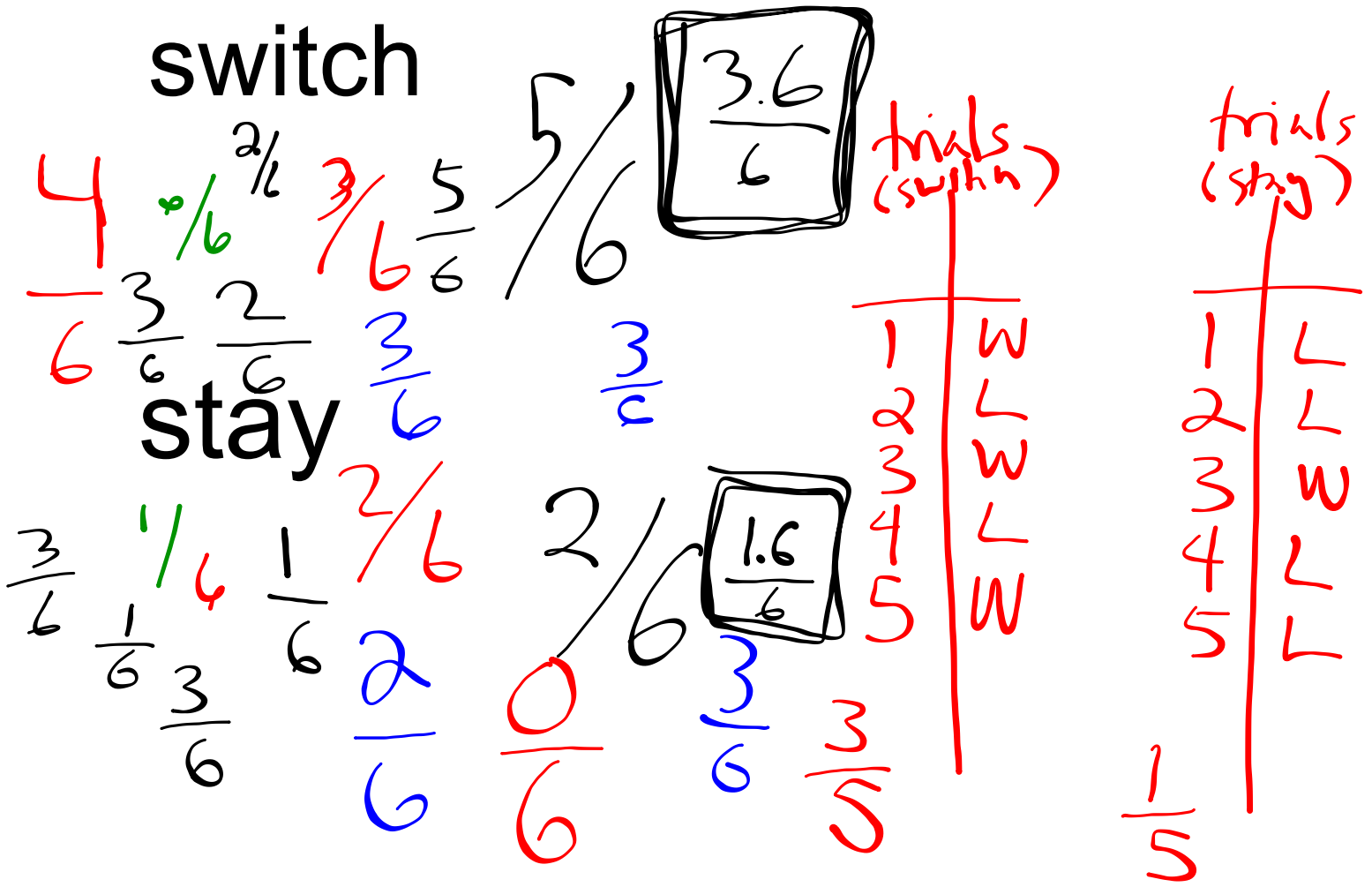
~~Therefore... if your shoes ≥ 9, you'll be over 6 feet~~

(all males)

height	shoe size
5'8"	14
6'10"	11
5'9"	15
6'2"	10
6'4"	10.5

http://www.marilynvossavant.com/articles/gameshow.html




switch
stay
3.6/6
1.6/6
trials (switch)
trials (stay)
1 W
2 L
3 W
4 L
5 W
1 L
2 L
3 W
4 L
5 L

$$P(A) = \frac{\#\text{ of ways A can happen}}{\#\text{ of ways anything can happen}}$$

$${}_nP_r = \frac{n!}{(n-r)!} \quad \text{(order matters)}$$

$${}_nC_r = \frac{n!}{(n-r)!\,r!} \quad \text{(order doesn't matter)}$$

$$P(A \text{ or } B) = \frac{\#A + \#B - \#A \text{ and } B}{\#\text{ of outcomes}}$$

overlapping

$$P(A \text{ and } B) = P(A) \cdot P(B \text{ given } A)$$

$P(B)$ if independent

Eight swimmers participate in a race. In how many ways can the swimmers finish in first, second, and third place?

$$_8P_3 = \frac{8!}{(8-3)!} = \frac{8 \cdot 7 \cdot 6 \cdot 5!}{5!} =$$

336

What are the chances

1. Dan.
2. Ethan
3. Kacey

$\frac{1}{336}$

In Exercises 11 and 12, refer to a bag containing 12 tiles numbered 1–12.

11. You choose a tile at random. What is the probability that you choose a number less than 10 or an odd number.

12. You choose a tile at random, replace it, and choose a second tile at random. What is the probability that you choose a number greater than 3, then an odd number.

$P(\#_{10}\text{less or odd }\#) = \#_{10}\text{less} + \text{odd }\# - \#\text{less 10 and odd}$

$9 + 6 - 5$

$= \frac{10}{12} = \frac{5}{6}$

$P(A \text{ and } B) = P(A) \cdot P(B \text{ given } A)$

$\frac{9}{12} \cdot \frac{6}{12}$

$\frac{3}{4} \cdot \frac{1}{2} = \boxed{\frac{3}{8}}$

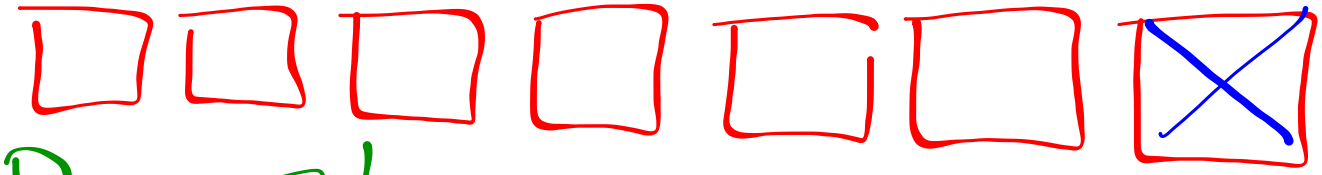
Soapbox Racing You are in a soapbox racing competition. In each heat, 7 cars race and the positions of the cars are randomly assigned.

a. In how many ways can a position be assigned? 7

b. What is the probability that you are chosen to be in the last position? *Explain* how you found your answer. .143

c. What is the probability that you are chosen to be in the first or second position of the heat that you are racing in? *Explain* how you found your answer. .286

d. What is the probability that you are chosen to be in the second or third position of the heat that you are racing in? *Compare* your answer with that in part (c). .286



$${}_7P_7 = \frac{7!}{(7-7)!} = 7! = 5040$$

$${}_6P_6 = \frac{6!}{(6-6)!} = 6! = 720$$

$$\frac{720}{5040} = .143$$

A bag contains 6 red balls and 5 green balls. You randomly draw one ball, replace it, and randomly draw a second ball.

Event A: The first ball is green.

Event B: The second ball is green.

Find the range and mean absolute deviation of the data. Round to the nearest hundredth, if necessary.

13. 10, 7, 13, 10, 8

14. 110, 114, 104, 108, 106

Homework:

Chapter 13 Review - p. 896 - 900
Odds required; evens optional