9/6/2012

Take out your Assignment over Sections 9.3 & 9.4

Turn in - **Activity 8: Simulate It** Lab (Put your name at the top and paper clip your recording sheets together)

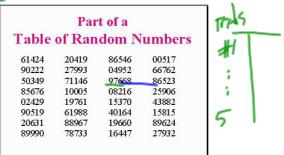Quiz (max time allowed is 25 minutes)

Notes on Permutations and Combinations

Math 304
Try This 9-9 on p. 559 that is due today

a. Use a random-digit table simulate the probability of getting 2 girls and 1 boy in a family of three.

Step 1 - Let the digits 0, 2, 4, 6, 8 represent a boy and 1, 3, 5, 7, 9 represent a girl

Step 2 - Randomly pick a starting location in the table

Step 3 - Look a 50 (or some large #) groups of 3 and tally the number of times getting 2 girls and 1 boy

Part of a
Table of Random Numbers

61424	20419	86546	00517
90222	27993	04952	66762
50349	71146	97668	86523
85676	10005	08216	25906
02429	19761	15370	43882
90519	61988	40164	15815
20631	88967	19660	89624
89990	78733	16447	27932

b. The theoretical probability of getting 2 girls and 1 boy

List all the outcomes: ggg, ggb, gbg, bgg, gbb, bgb, bbg, bbb

The P(2 girls and 1 boy) $= \dfrac{3}{8}$

c. The answers in part a and b will not always be the same. The simulations will vary from one experiment to another experiment. The greater the number of trials the more the simulation will approach the theoretical probability.

Section 2.3 assignment from 9-3A p. 561
8. The number of tagged/total is one way to set
up a proportion and solve this problem

$$\frac{50}{300} = \frac{200}{x}$$ ×4

The pond has approximately 1,200 fish

9.a. The maximum # of games is 7
b. Simulate the world series
Let digits 0 - 4 represent team A winning and digits
5-9 represent team B winning.
i) Randomly pick a starting digit in the table and
select 50 four digit groups and record the number
of times all four digits are representing the same
team wins.
ii) Randomly pick a starting digit in the table and
select 50 seven digit groups and record the number
of times it took all 7 digits to determine a winner.

Assignment Due
Try This 9-11 (Using Example 9-12 13) pp. 566-567
b. What are the odds in favor of tossing a heads? $1:1$

c. What are the odds in favor of drawing an ace from a standard deck of
   cards? $4:48$ or $1:12$

d. What are odds in favor of drawing a heart from a standard deck of cards?
               $13:39$ or $1:3$

9.4A #1, 4, 6 on p. 572
1. a. The odds in favor of drawing a face card from an ordinary deck of cards
      is: 12:40 or 3:10
   b. The odds in against drawing a face card from an ordinary deck of cards
      is: 40:12 or 10:3

4. If the odds against winning are 3 to 5 then the probability of winning is $\frac{5}{8}$

6. If the probability of having a cat is 0.27, then the odds against having a cat
   are 73:27

Connections 9-4 p. 574

1. The difference between odds and probability is _____
   (Check with your classmates to determine if they agree)

8. If the odds in favor of an event are 3:4, then the probability of the event $\frac{3}{4}$
   occurring is not.

   The probability would be as there are 3 favorable and 4 unfavorable events to explain where the total of 7 is determ

After the Quiz

Vocabulary for Section 9-5

Place the term, definition, and example in your notebook for each of the following:

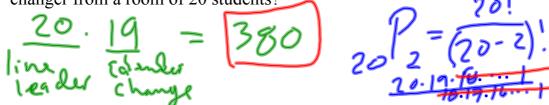permutation

n factorial

combination

Notes for Section 9-5   9/6/12

1. a. How many ways can you select a class line leader and a calendar
   changer from a room of 20 students?

$$\frac{20}{\text{line leader}} \cdot \frac{19}{\text{calendar change}} = \boxed{380}$$

$$_{20}P_2 = \frac{20!}{(20-2)!}$$

$$\frac{20 \cdot 19 \cdot \cancel{18 \cdots 1}}{\cancel{18 \cdot 17 \cdot 16 \cdots 1}}$$

   b. How many ways can you select two milk carriers from a room of 20
   students?

$$K \cdot S$$
$$S \cdot K \quad \text{Milk} \quad \frac{(20 \cdot 19)}{\text{Carrier}_{\#1} \quad \text{milk carrier}_{\#2}} \div 2 = \frac{190}{}$$

$$_{20}C_2 = \frac{20!}{(20-2)!2!} = 19$$

2. What is the number of arrangements of the letters JACKS ?

$$\frac{5}{1^{st}} \cdot \frac{4}{2^{nd}} \cdot \frac{3}{3^{rd}} \cdot \frac{2}{4^{th}} \cdot \frac{1}{5^{th}} = 5! = 12$$

Activity 10: How Many Arrangements? on pp. 7-10 of your Lab Packet

# Squares	1	2	3	4	... n
# Arrangements	1	2			

BYR
BRY
⋮

Assignment

Read pp. 575-583, complete the Vocabulary in section 9.5 (permutation, *n* factorial, combination)

Watch KhanAcademy's Permutations & Combinations videos

Finish Activity 10: How Many Arrangements on pp. 7-10 in your Lab packet

Try This 9-14 on p. 577
9.5A #4, 7, 8, 9, 11, 20 on p. 584
Chapter Review #1-7, 11 on pp. 589-590