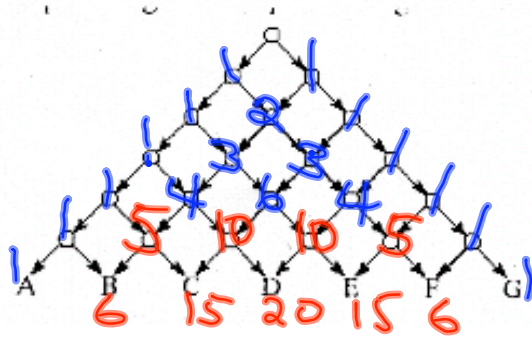


## Pathway Problems

A pinball game has pins arranged as follows.



a) Determine the number of different pathways to each exit

b) Determine the total number of different pathways through the pins

$$1 + 6 + 15 + 20 + 15 + 6 + 1 = \underline{64}$$

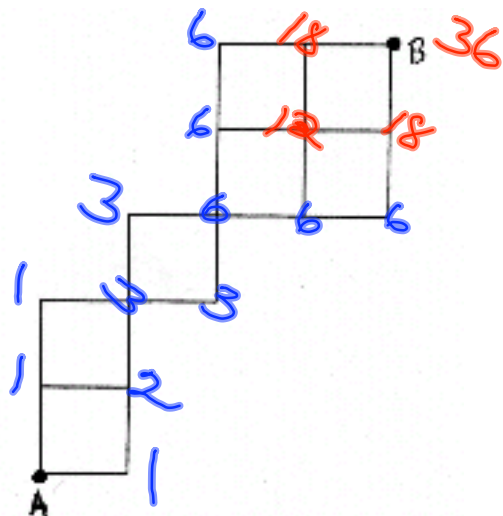
c) What is the theoretical probability for exit E?

$$\frac{15}{64}$$

d) What is the theoretical probability for exit D?

$$\frac{20}{64} \longrightarrow \frac{5}{16}$$

2. Determine the total number of pathways from A to B if you can only move up and right.



### Pathways Involving a Road Map



Pg. 11 7, 8

### Generating and Using Sample Spaces

Whenever you are working with probability you must know the sample space:

**Sample Space:** Is the list of ALL possible outcomes of an experiment.

**Investigation :** Pg. 13 Rolling Two Dice

	1	2	3	4	5	6
1	1,1	1,2	1,3	1,4	1,5	1,6
2	2,1	2,2	2,3	2,4	2,5	2,6
3	3,1	3,2	3,3	3,4	3,5	3,6
4	4,1	4,2	4,3	4,4	4,5	4,6
5	5,1	5,2	5,3	5,4	5,5	5,6
6	6,1	6,2	6,3	6,4	6,5	6,6

$$6 \times 6 = 36 \text{ outcomes}$$

**Complement:**

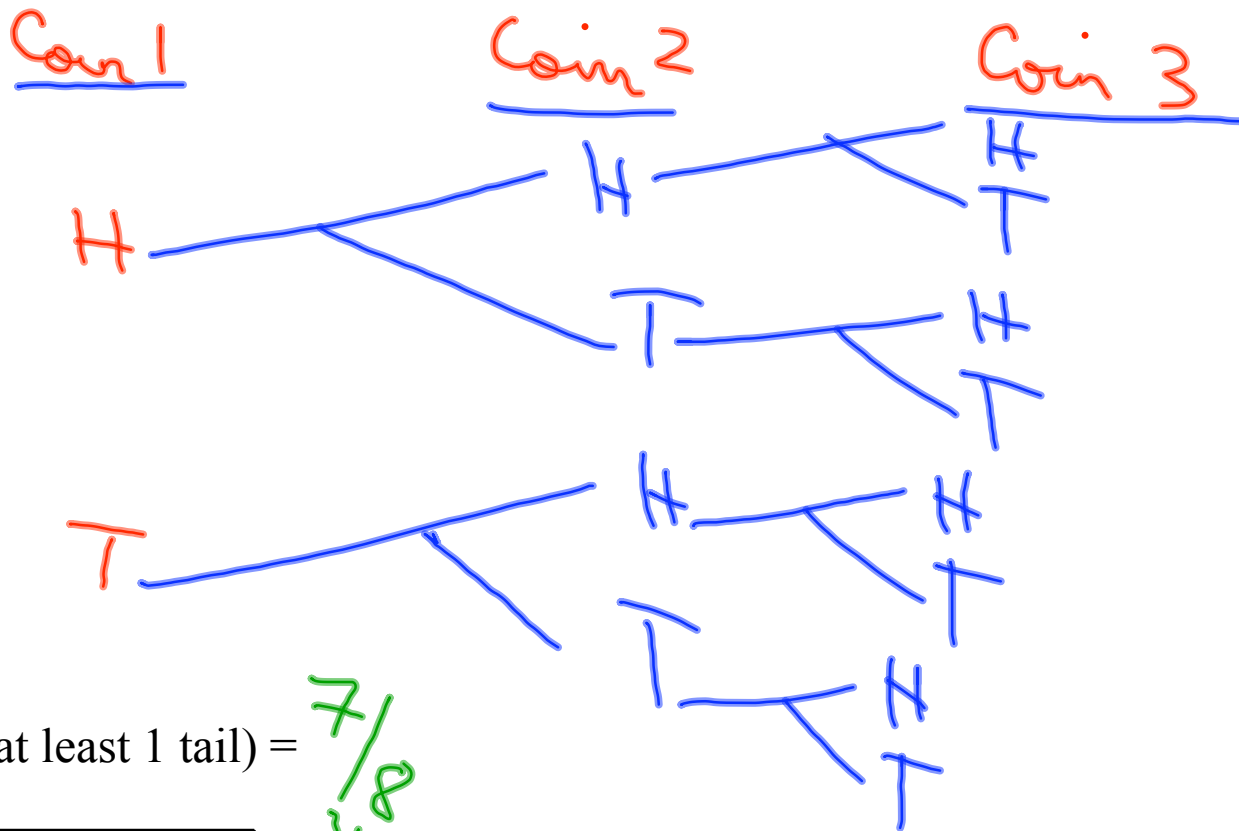
Is all of the outcomes of an ~~event~~ <sup>event that</sup> DO NOT satisfy the condition  
 Probability of rolling a 3 on a single die  $P(3) = 1/6$

**Complement:** Probability of NOT rolling a 3 on a single die

$\overline{P(3)} = 5/6$

$P(\text{even and } 5) = \frac{6}{36} = \frac{1}{6}$   
 $P(\text{even and } 5) = \frac{30}{36} = \frac{5}{6}$

List all of the outcomes associated with flipping 3 coins



$P(\text{at least 1 tail}) = \frac{7}{8}$   
 $\overline{P(\text{at least 1 tail})} = \frac{1}{8}$

**Assignment:**  
**Pg. 17**  
**1-8**