

# Predicting the Probabilities of Dice

## Worksheet 4.1 A

When rolling two dice there is a way to predict which sum will be the most likely to appear. Go through this worksheet and see if you can find any patterns that might give you a clue to the trick.

1. Suppose you were rolling two dice that were both numbered from 0 to 5. Which sum would you expect to show up the most? To find out, fill in the probability table for the two dice.

A. What is the minimum sum possible for rolling the two dice?

B. What is the maximum sum possible for rolling the two dice?

C. What sum has the highest probability of being rolled?

	Die #1					
	0	1	2	3	4	5
0						
1						
2						
3						
4						
5						

2. In a particular game, you have to roll a 0 to 5 cube and a 5 to 10 cube. If you rolled to dice a bunch of times which sum would show up the most? Fill in the probability table to find out.

A. What is the minimum sum possible for rolling the two dice?

B. What is the maximum sum possible for rolling the two dice?

C. What sum has the highest probability of being rolled?

	Die #1				

3. Make a probability table for rolling two dice. One die has the numbers -2, -1, 0, 1, 2, 3. The other die has the numbers 0 to 5.

A. What is the minimum sum possible for rolling the two dice?

B. What is the maximum sum possible for rolling the two dice?

C. What sum has the highest probability of being rolled?

**4. Make a probability table for rolling two eight-sided dice. One is numbered 1 to 8 and the other is numbered from -3 to 4.**

A. What is the minimum sum possible for rolling the two dice?

B. What is the maximum sum possible for rolling the two dice?

C. What sum has the highest probability of being rolled?

**5. Invent any pair of dice. They do not have to be the same as each other. Create the probability table for your pair of dice.**

A. What is the minimum sum possible for rolling the two dice?

B. What is the maximum sum possible for rolling the two dice?

C. What sum has the highest probability of being rolled?

**There must be a pattern somewhere around here, don't you think? Sure you do. How about if we put all of our previous answers together into one big chart? Now look for a pattern...**

<b>Problem #</b>	<b>Minimum Sum</b>	<b>Maximum Sum</b>	<b>Highest Probability</b>
1			
2			
3			
4			
5			

**Describe any patterns that you found. What is the trick for predicting what sum will have the highest probability of being rolled?**