

Name \_\_\_\_\_

Date \_\_\_\_\_

## Worksheet D3 : Probability vs. Odds

The probability of an event is defined as the number of ways the event can happen successfully divided by the number of ways it can possibly happen (successes + failures).

The odds in favor of an event are defined as the number of ways the event can happen successfully divided by the number of ways it can fail to happen.

If the odds in favor of an event are  $\frac{a}{b}$ , or  $a$  to  $b$ ,

then the probability of the event is  $\frac{a}{a+b}$ ,

and the odds against an event are  $\frac{b}{a}$ , or  $b$  to  $a$ ,

A single die is tossed.

1. What is the probability that the number of spots showing is:

- a. 6                      b. even                      c. odd                      d. less than 3?

2. What are the odds that the number of spots showing is:

- a. 6                      b. even                      c. odd                      d. less than 3?

3. One letter is selected at random from the first 10 letters of the alphabet. What is the probability that the letter is:

- a. a vowel                      b. a consonant  
c. before E in the alphabet                      d. in the word SIDEWALK

4. What are the odds in favor of each event in #3?

- a. a vowel                      b. a consonant  
c. before E in the alphabet                      d. in the word SIDEWALK

5. Two dice are thrown. Refer to the 2 die roll chart to the right to decide the probability of each of the following events.

(1,1)	(1,2)	(1,3)	(1,4)	(1,5)	(1,6)
(2,1)	(2,2)	(2,3)	(2,4)	(2,5)	(2,6)
(3,1)	(3,2)	(3,3)	(3,4)	(3,5)	(3,6)
(4,1)	(4,2)	(4,3)	(4,4)	(4,5)	(4,6)
(5,1)	(5,2)	(5,3)	(5,4)	(5,5)	(5,6)
(6,1)	(6,2)	(6,3)	(6,4)	(6,5)	(6,6)

- a. The sum of the numbers showing is 7.
- b. Both dice show the same number.
- c. The dice show different numbers.
- d. The sum of the numbers showing is 4 or 6.

6. What are the odds in favor of each event in #5?

- a. The sum of the numbers showing is 7.
- b. Both dice show the same number.
- c. The dice show different numbers.
- d. The sum of the numbers showing is 4 or 6.