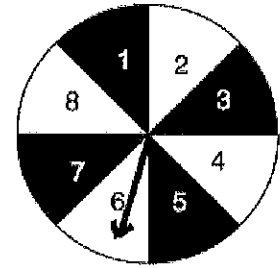Name: __Key__

Sec. 5.1
Sample Space and Outcomes

Experimental and Theoretical Probability

You spin a black and white numbered spinner 10 times. The results are shown below.

6, 5, 8, 5, 3, 1, 1, 5, 4, 7

Find the _experimental_ probability of each outcome. Express answers as a fraction.

1. P(spinning a 5) =

$$\boxed{\dfrac{3}{10}}$$

2. P(spinning a 6) =

$$\boxed{\dfrac{1}{10}}$$

3. P(rolling an even number) =

$$\boxed{\dfrac{3}{10}}$$

4. P(spinning a black number) =

$$\boxed{\dfrac{7}{10}}$$

5. What is the _experimental_ probability of spinning an odd number on the spinner? For 50 spins of the spinner, predict the number of spins that will result in an odd number.

$$\boxed{\dfrac{7}{10}} \qquad \boxed{35 \text{ spins}}$$

Find the _theoretical_ probability of each outcome. Express answers as a percent rounded to the nearest tenth.

6. P(spinning a 5) =

$$\boxed{\dfrac{1}{8}}$$

7. P(spinning a 6) =

$$\boxed{\dfrac{1}{8}}$$

8. P(spinning an even number) =

$$\boxed{\dfrac{1}{2}}$$

9. P(spinning a black number) =

$$\boxed{\dfrac{1}{2}}$$

10. P(spinning an odd white number) =

$$\boxed{0}$$

11. P(spinning a multiple of 3) =

$$\dfrac{2}{8} = \boxed{\dfrac{1}{4}}$$

List the sample space then find the number of possible outcomes in the sample space.

12. What is the sample space for choosing an odd number from 1 to 11 at random?

$$1, 3, 5, 7, 9, 11 \qquad 6 \text{ outcomes}$$

13. You roll a die and flip a coin twice.
    Labels (1-6 on die, H=heads, T=tails)

1	2	3	4	5	6
1HH	2HH	3HH	4HH	5HH	6HH
1HT	2HT	3HT	4HT	5HT	6HT
1TH	2TH	3TH	4TH	5TH	6TH
1TT	2TT	3TT	4TT	5TT	6TT

24 outcomes

14. You flip a coin and draw a marble at random from a bag containing two purple marbles and one white marble. Labels: (H=heads, T=tails, P1=first purple, P2=second purple, W=white)

H	T
HP1	TP1
HP2	TP2
HW	TW

6 outcomes

15. Two number cubes are rolled.
    Find their sums.

	1	2	3	4	5	6
1	2	3	4	5	6	7
2	3	4	5	6	7	8
3	4	5	6	7	8	9
4	5	6	7	8	9	10
5	6	7	8	9	10	11
6	7	8	9	10	11	12

36 outcomes

16. Two number cubes are rolled.
    Find their products.

	1	2	3	4	5	6
1	1	2	3	4	5	6
2	2	4	6	8	10	12
3	3	6	9	12	15	18
4	4	8	12	16	20	24
5	5	10	15	20	25	30
6	6	12	18	24	30	36

36 outcomes

17. You draw two marbles without replacement from a bag containing three green marbles and four black marbles. Labels: (G1=first green, G2=second green, G3=third green, B1=first black, B2=second black, B3=third black, B4=fourth black)

G1	G2	G3	B1	B2	B3	B4
G1 G2	G2 G1	G3 G1	B1 G1	B2 G1	B3 G1	B4 G1
G1 G3	G2 G3	G3 G2	B1 G2	B2 G2	B3 G2	B4 G2
G1 B1	G2 B1	G3 B1	B1 G3	B2 G3	B3 G3	B4 G3
G1 B2	G2 B2	G3 B2	B1 B2	B2 B1	B3 B1	B4 B1
G1 B3	G2 B3	G3 B3	B1 B3	B2 B3	B3 B2	B4 B2
G1 B4	G2 B4	G3 B4	B1 B4	B2 B4	B3 B4	B4 B3

42 outcomes

18. You spin a spinner twice that has four equal sections of blue, yellow, red, and green.
    Labels: (B=blue, Y=yellow, R=red, G=green)

B	Y	R	G
BY	YB	RB	GB
BR	YR	RY	GY
BG	YG	RG	GR
BB	YY	RR	GG

16 outcomes

19. You have one red apple, and three green apples in a bowl. You randomly select one apple to eat now and another apple for your lunch.
    Labels: (r=red apple, G1=first green apple, G2=second green apple, G3=third green apple)

R	G1	G2	G3
R G1	G1 R	G2 R	G3 R
R G2	G1 G2	G2 G1	G3 G1
R G3	G1 G3	G2 G3	G3 G2

12 outcomes

20. A student is taking a multiple-choice test where each question has four choices. The student randomly guesses the answers to the five question test. Labels: (C=correct, I=incorrect)

0 correct	1 correct	2 correct	3 correct	4 correct	5 correct
IIIII	CIIII	CCIII	CCCII	CCCCI	CCCCC
	ICIII	CICII	CCICI	CCCIC	
	IICII	CIICI	CCIIC	CCICC	
	IIICI	CIIIC	CICCI	CICCC	
	IIIIC	ICCII	CICCC	ICCCC	
		ICICI	CICIC		
		ICIIC	ICCCI		
		IICCI	ICCIC		
		IICIC	ICICC		
		IIICC	IICCC		

32 outcomes

21. A vase contains four white roses and one red rose. You randomly select two roses to take home.
    Labels: (W1=first white rose, W2=second white rose, W3=third white rose, W4=fourth white rose, R=red rose)

W1	W2	W3	W4	R
W1 W2	W2 W1	W3 W1	W4 W1	R W1
W1 W3	W2 W3	W3 W2	W4 W2	R W2
W1 W4	W2 W4	W3 W4	W4 W3	R W3
W1 R	W2 R	W3 R	W4 R	R W4

20 outcomes