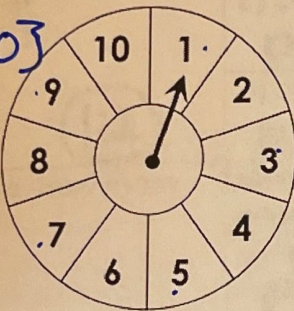


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Name: Key

Date:

Main Ideas/Questions	Notes/Examples
EXPERIMENT	An activity with an observable result.
	Example: Flipping a coin. Rolling a dice. Spinning a spinner
OUTCOME	A possible result of an experiment.
	Example: A coin landing on heads
SAMPLE SPACE	ALL possible outcomes of an experiment
	Example: One dice - {1,2,3,4,5,6} A coin - {H,T}
EVENT	One or more outcomes of an event
	Example: Rolling an odd number
FAVORABLE OUTCOMES	The outcome you are looking for in an experiment
	Example: Rolling an odd number - {1,2,3}
Identifying Outcomes	1. A letter from the word BASKETBALL is chosen at random. List the possible outcomes.
	Sample Space : {B,A,S,K,E,T,B,A,L,L}
	Total Outcomes: (10)
	List the favorable outcomes for:
	a) choosing K K $P = 1/10$
b) not choosing B A,S,K,E,T,A,L,L $P = 8/10$	
c) choosing a T or an L T,L,L $P = 3/10$	
d) choosing a vowel A,E,A $P = 3/10$	

Main Ideas/Questions	Notes/Examples
PROBABILITY	<ul style="list-style-type: none"> Probability is a measure of the <u>likelihood</u> that a specific <u>event</u> will occur. Probabilities have values between <u>0</u> and <u>1</u>. An event that is impossible has a probability of <u>0</u>. An event that is certain to occur has a probability of <u>1</u>.
FINDING PROBABILITY	<p>When all outcomes are equally likely, the probability of an event, $P(\text{event})$, is the ratio of the number of favorable outcomes to the total number of outcomes.</p> <div style="border: 1px solid black; padding: 10px; width: fit-content; margin: 10px auto;"> $P(\text{event}) = \frac{\text{\# of favorable outcomes}}{\text{Total \# of outcomes}}$ </div> <p style="text-align: center;">Probabilities can be written as fractions, decimals, or percents!</p>
EXAMPLES Sample Space: $\{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ Total Outcomes (10)	<p>Directions: Find each probability as a fraction (in simplest form), decimal, and percent.</p> <p>1. The spinner below is spun once.</p> <div style="text-align: center;">  </div>
	<p>a) $P(\text{odd})$ 1, 3, 5, 7, 9 $P = \frac{5}{10} = .5 = 50\%$</p> <p>b) $P(\text{multiple of 4})$ 4, 8 $P = \frac{2}{10} = .2 = 20\%$</p> <p>c) $P(\text{prime number})$ 2, 3, 5, 7 $P = \frac{4}{10} = .4 = 40\%$</p> <p>d) $P(\text{even or greater than 5})$ 2, 4, 6, 8, 10, 7, 9 $P = \frac{7}{10} = .7 = 70\%$</p>
<hr/> <p>2. A letter from the word ACCELERATION is chosen at random.</p> <p>S.S $\{A, C, C, E, L, E, R, A, T, I, O, N\}$ T.O = (12)</p>	<p>a) $P(R)$ R $P = \frac{1}{12} = .083 = 8.3\%$</p> <p>b) $P(C)$ C, C $P = \frac{2}{12} = \frac{1}{6} = .17 = 17\%$</p> <p>c) $P(\text{not a vowel})$ C, C, L, R, T, N $P = \frac{6}{12} = .5 = 50\%$</p> <p>d) $P(L, R, \text{ or } A)$ A, A, L, R $P = \frac{4}{12} = .333 = 33.3\%$</p>

Name: _____

Date: _____ Per: _____

Directions: List the possible outcomes.

1. Cara is playing a number game where she has two tiles for each number 0 – 9. A tile is chosen at random. List the possible outcomes.

{ 0, 0, 1, 1, 2, 2, 3, 3, 4, 4,
5, 5, 6, 6, 7, 7, 8, 8,
9, 9 }

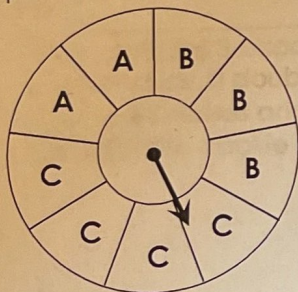
(20)

2. A jar contains 3 red marbles, 2 orange marbles, 3 green marbles and 4 blue marbles. One marble is chosen at random. List the possible outcomes.

{ R, R, R, O, O, G, G,
B, B, B, B }

(12)

3. The spinner below is spun once. How many possible outcomes are there?



(9)

4. Blair has a box of candy to sell. She has 4 chocolate bars, 4 fruit chews, 1 pack of bubble gum and 3 sour candies. If she chooses a piece of candy at random, how many possible outcome are there?

C, C, C, C, F, F, F, F,
B, S, S, S

(12)

Probabilities

List the ~~favorable outcomes~~ for:

a) choosing a 2
 $P = 2/20 = .1 = 10\%$

b) not choosing an even number
 $P = 12/20 = .6 = 60\%$

c) choosing a number less than 4
 $P = 8/20 = .4 = 40\%$

d) choosing a multiple of 3
 $P = 6/20 = .3 = 30\%$

List the ~~favorable outcomes~~ for:

a) choosing a red marble
 $P = 3/12 = .25 = 25\%$

b) not choosing a green marble
 $P = 10/12 = .833 = 83.3\%$

c) choosing a blue or orange marble
 $P = 6/12 = .5 = 50\%$

d) choosing a primary color
 $P = 7/12 = .583 = 58.3\%$

Give the number of favorable outcomes for each event:

a) spinning B
 $P = 3/9 = .333 = 33.3\%$

b) spinning A or C
 $P = 6/9 = .667 = 66.7\%$

c) not spinning C
 $P = 5/9 = .556 = 55.6\%$

d) spinning B and C
 $P = 0/9 = 0 = 0\%$

Give the number of favorable outcomes for each event.

a) choosing a pack of gum
 $P = 1/12 = .083 = 8.3\%$

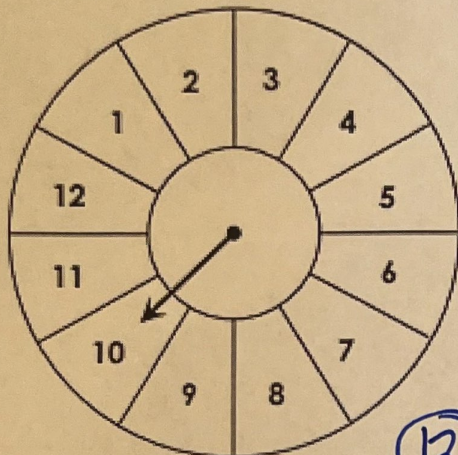
b) not choosing a sour candy
 $P = 9/12 = .75 = 75\%$

c) choosing a chocolate bar or pack of gum
 $P = 5/12 = .417 = 41.7\%$

d) choosing anything other than fruit chews
 $P = 8/12 = .667 = 66.7\%$

Directions: Find each probability as a fraction (in simplest form), decimal, and percent.

1. The spinner below is spun once.



(12)

a) $P(\text{even})$ 2, 4, 6, 8, 10, 12

$$P = 6/12 = .5 = 50\%$$

b) $P(\text{no more than 10})$ 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

$$P = 10/12 = .833 = 83.3\%$$

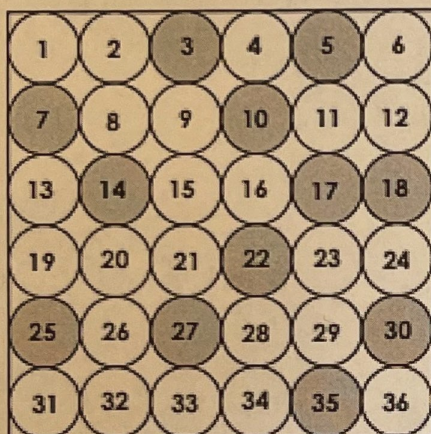
c) $P(\text{even or a multiple of 3})$ 2, 3, 4, 6, 8, 9, 10, 12

$$P = 8/12 = .667 = 66.7\%$$

d) $P(\text{less than 10 and odd})$ 9, 7, 5, 4, 3

$$P = 5/12 = .416 = 41.6\%$$

2. A ball is thrown into one of the jars.



(36)

a) $P(\text{odd and unshaded})$ 1, 5, 9, 11, 13, 15, 17, 21, 23, 29, 31, 33, 35

$$P = 11/36 =$$

b) $P(\text{shaded and at least 18})$ 18, 22, 25, 27, 30, 35

$$P = 6/36 = .167 = 16.7\%$$

c) $P(\text{multiple of 6})$ 6, 12, 18, 24, 30, 36

$$P = 6/36 = .167 = 16.7\%$$

d) $P(\text{less than 25 and shaded})$ 22, 18, 17, 14, 10, 7, 5, 3

$$P = 8/36 = .222 = 22.2\%$$

3. A jar contains 3 chocolate chip cookies, 4 mint cookies, 3 double chocolate cookies, 5 oatmeal cookies and 1 peanut butter cookie. One cookie is chosen at random.

a) $P(\text{double chocolate})$

$$P = 3/16 = .188 = 18.8\%$$

b) $P(\text{chocolate chip or peanut butter})$

$$P = 4/16 = .25 = 25\%$$

c) $P(\text{oatmeal or peanut butter})$

$$P = 6/16 = .375 = 37.5\%$$

d) $P(\text{not mint})$

$$P = 12/16 = .75 = 75\%$$

Total Outcomes =
 $3 + 4 + 3 + 5 + 1 = 16$