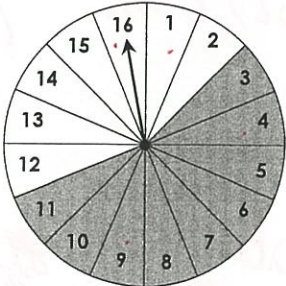


Name: <i>Key</i>	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples											
<b>EXPERIMENT</b>	<i>procedure that can be repeated that has a set of possible outcomes</i> Example: <i>rolling a die</i>											
<b>OUTCOME</b>	<i>the results of an experiment</i> Example: <i>rolling a 4</i>											
<b>SAMPLE SPACE</b>	<i>the total possible outcomes</i> Example: <i>6 sides</i>											
<i>Examples</i>	<b>Give the sample space and number of outcomes for each experiment:</b>											
	<table border="1"> <tr> <td>1. A state that begins with the letter O is chosen.</td> <td># of Outcomes <i>3</i></td> </tr> <tr> <td>2. A day of the week is chosen.</td> <td># of Outcomes <i>7</i></td> </tr> </table>	1. A state that begins with the letter O is chosen.	# of Outcomes <i>3</i>	2. A day of the week is chosen.	# of Outcomes <i>7</i>							
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<b>PROBABILITY</b>	<ul style="list-style-type: none"> <li>A measure of the <i>probability</i> of a specific <i>experiment</i> occurring, noted as <math>P(E)</math>.</li> <li>Expressed as a <i>fraction</i> of <i>possible</i> outcomes to the <i>total</i> number of outcomes. This ratio can be written as a <i>decimal</i>, <i>fraction</i> or a <i>percent</i>.</li> <li>The sum of all probabilities in a sample space is equal to <u>1</u>.</li> </ul>											
<i>Examples</i>	<b>Give each probability as a fraction (in simplest form), a decimal, and a percent.</b>											
	<p>3. The spinner below is used in a game. If it is spun once, find each probability.</p>  <table border="1"> <tr> <td>a) <math>P(9)</math></td> <td><i><math>\frac{1}{16}</math>, 0.0625, 6.25%</i></td> </tr> <tr> <td>b) <math>P(\text{at least } 12)</math></td> <td><i><math>\frac{5}{16}</math>, 0.3125, 31.25%</i></td> </tr> <tr> <td>c) <math>P(\text{perfect square})</math></td> <td><i><math>\frac{4}{16} = \frac{1}{4}</math>, 0.25, 25%</i></td> </tr> <tr> <td>d) <math>P(\text{not shaded})</math></td> <td><i><math>\frac{7}{16}</math>, 0.4375, 43.75%</i></td> </tr> <tr> <td>e) <math>P(2 \text{ or } 11)</math></td> <td><i><math>\frac{2}{16} = \frac{1}{8}</math>, 0.125, 12.5%</i></td> </tr> <tr> <td>f) <math>P(\text{multiple of } 5)</math></td> <td><i><math>\frac{3}{16}</math>, 0.1875, 18.75%</i></td> </tr> </table>	a) $P(9)$	<i><math>\frac{1}{16}</math>, 0.0625, 6.25%</i>	b) $P(\text{at least } 12)$	<i><math>\frac{5}{16}</math>, 0.3125, 31.25%</i>	c) $P(\text{perfect square})$	<i><math>\frac{4}{16} = \frac{1}{4}</math>, 0.25, 25%</i>	d) $P(\text{not shaded})$	<i><math>\frac{7}{16}</math>, 0.4375, 43.75%</i>	e) $P(2 \text{ or } 11)$	<i><math>\frac{2}{16} = \frac{1}{8}</math>, 0.125, 12.5%</i>	f) $P(\text{multiple of } 5)$
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	4. A month of the year is chosen at random. Find each probability.	a) $P(\text{starts with J})$ $\frac{2}{12} = \frac{1}{6}, 0.1667, 16.67\%$
		c) $P(\text{starts with T})$ $\frac{0}{12} = 0, 0\%$
		d) $P(\text{has at most 30 days})$ $\frac{5}{12}, 0.4167, 41.67\%$
	5. A letter from the word <b>PROBABILITY</b> is chosen at random. Find each probability.	a) $P(B)$ $\frac{2}{11}, 0.1818, 18.18\%$
		b) $P(\text{a vowel})$ $\frac{4}{11}, 0.3636, 36.36\%$
		c) $P(Y)$ $\frac{1}{11}, 0.0909, 9.09\%$
	6. A pencil box contains five red, six yellow, eight blue, three orange, and two purple colored pencils. If one is chosen at random, find each probability.	a) $P(\text{yellow})$ $\frac{6}{24} = \frac{1}{4}, 0.25, 25\%$
		b) $P(\text{blue or purple})$ $\frac{10}{24} = \frac{5}{12}, 0.4167, 41.67\%$
		c) $P(\text{not orange})$ $\frac{21}{24} = \frac{7}{8}, 0.875, 87.5\%$
	7. If a card is chosen at random find a standard deck of cards, find each probability.	a) $P(\text{queen})$ $\frac{4}{52} = \frac{1}{13}, 0.0769, 7.69\%$
		b) $P(\text{red three})$ $\frac{2}{52} = \frac{1}{26}, 0.0385, 3.85\%$
		c) $P(\text{spade})$ $\frac{13}{52} = \frac{1}{4}, 0.25, 25\%$
<b>COMPLEMENT of an event</b>	The complement of an event is the probability of the event <u>not</u> occurring. Since the sum of all probabilities in a sample space is <u>1</u> , the probability of an event not occurring is $P(\sim E) = \underline{1 - P(E)}$ .	
	8. If the probability that it will rain tomorrow is $\frac{3}{8}$ , what is the probability that it will not rain? $1 - \frac{3}{8} = \frac{5}{8}, 0.625, 62.5\%$	9. If the probability that someone will win a game at the carnival is $\frac{1}{24}$ , what is the probability that they will not win? $1 - \frac{1}{24} = \frac{23}{24}, 95.83\%$
	10. A number from 1-20 is chosen at random. What is the probability that it is not prime? $\frac{12}{20} = \frac{6}{10} = \frac{3}{5}, 0.6, 60\%$	11. If a state is chosen at random, what is the probability that it does not begin with the letter M? $\frac{42}{50} = 0.84, 84\%$