Chapter 10 Probability and Statistics

Notetaking Organizer

1–7. Sample answers are given.

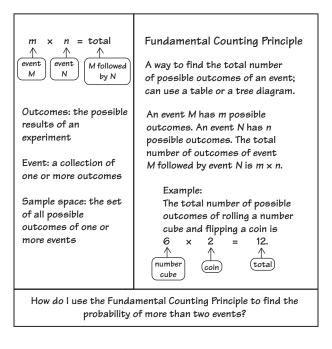
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		2

$P(\text{event}) = \frac{\substack{\text{number of times}}{\substack{\text{the event occurs}}}}{\substack{\text{total number}\\\text{of trials}}}$	Experimental Probability
Experiment: an investigation or a procedure that has	Probability that is based on repeated trials of an experiment
varying results	Example: You flip a coin 100 times. You flip heads 52 times
Outcomes: the possible results of an experiment	and tails 48 times. The experimental probabilites are
Event: a collection of one or more outcomes	$P(\text{heads}) = \frac{52}{100} = 0.52 = 52\%,$ and
	<i>P</i> (tails) = $\frac{48}{100}$ = 0.48 = 48%.
· ·	ility of an event without doing an periment?

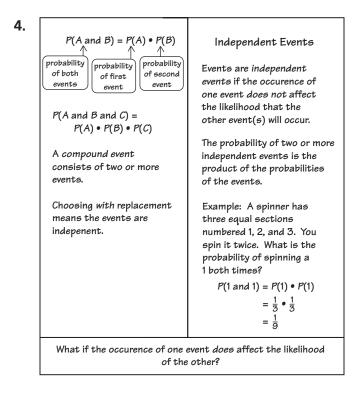
$P(\text{event}) = \frac{\frac{\text{number of}}{\text{favorable outcomes}}}{\frac{\text{number of}}{\text{number of}}}$	Theoretical Probability
possible outcomes	The ratio of the number of favorable outcomes to the number of possible
Outcomes: the possible results of an experiment	outcomes, when all possible outcomes are equally likely
Event: a collection of one or more outcomes	Example: You flip a coin. The theoretical probability of
Favorable outcomes: the outcomes of a specific event	flipping heads and the theoretical probability of flipping tails is $P(heads) = \frac{1}{2}$, and
	$P(tails) = \frac{1}{2}.$

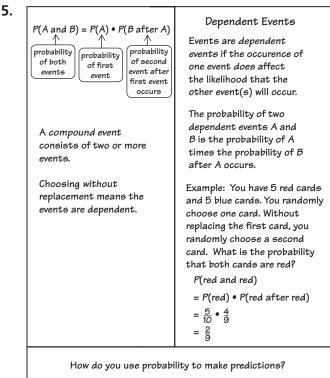
2.





Chapter 10 (continued)





Chapter 10 (continued)

Population	Sample
(Sample) ↓	Part of a population
Interpretation Inference An unbiased sample is representative of	The results of an unbiased sample are proportional to the results of the population. So, you can use unbiased samples to make predictions about the population.
a population. It is selected at random and is large enough to provide accurate data.	Biased samples are not representative of the population. So, you should not use them to make predictions about the population because the predictions may not be valid.
A biased sample is not represen- tative of a population. One or more parts of the population are favored over others.	Example: Population: All of the seventh-grade students in your school Unbiased sample: 100 seventh-grade students selected randomly during lunch Biased sample: The seventh-grade students at your lunch table
How do you sel	ect an unbiased sample from a large

population?

7

6.

average of how much data values differ from the mean
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