

Lab CC 2.2 Tour Combinations

Name _____

Date _____ Period _____

Clever Counting Unit



You are a travel agent responsible for setting up bus tours of the United States for foreign tourists. Your manager has asked you to set up special **4-REGION Tours** that will originate (start) in an East Coast city, pass through a Mid-West city, then pass through a Rocky Mountain/Heartland city and terminate (finish) in a West Coast city.



The *choice cities* for each region are as follows:

East Coast	Mid-west	Rocky Mtn/ Heartland	West Coast
Boston	Detroit	Denver	Seattle
New York	Chicago	Oklahoma City	San Francisco
Philadelphia	Indianapolis	Dallas	Los Angeles
Washington, D.C.	Memphis	Houston	San Diego
Jacksonville	New Orleans	San Antonio	
Miami		Phoenix	

- a) Given that only one city from each region can be selected, how many different combinations of **4-REGION Tours** can be made? Show your work.

- b) You decide to develop a *Northern Lights Tour*, which will only stop in cities as far south as San Francisco (including San Francisco). How many *Northern Lights Tour* combinations will exist?

- c) You decide to develop a *Southern Swing Tour*, which will only stop in cities south of San Francisco (not including San Francisco). How many *Southern Swing Tour* combinations will exist?



d) Add the number of *Northern Lights Tours* to the number of *Southern Swing Tours*. Does this sum match the total number of **4-REGION Tours**. Why or why not? Explain.

e) You decide that New Orleans should temporarily be removed from the list, due to the effects of Hurricane Katrina.

What fraction of *Southern Swing Tours* will be lost?

What fraction of **4-REGION Tours** will be lost?

Were your fractions the same or different? Explain.

f) Use the map to select the four cities that make-up the **SHORTEST** possible total mileage for a **4-REGION Tour**. List the cities below:

g) Use the map to select the four cities that make-up the **LONGEST** possible total mileage for a **4-REGION Tour**. List the cities below: