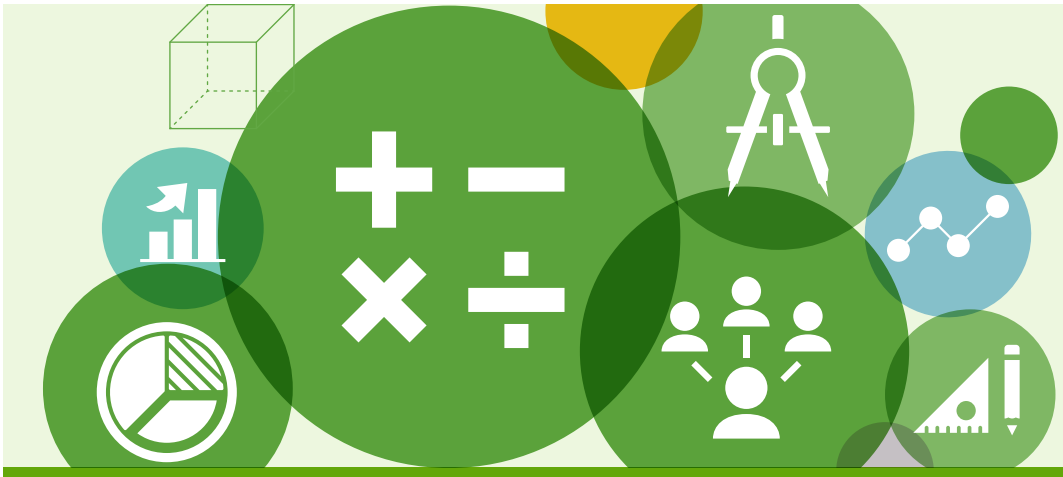


STUDENT VERSION

WHAT IS A STATISTICAL QUESTION?

Activity Items

The following items are part of this activity and appear at the end of this student version.

- Item 1: Radio Set Ownership Map
- Item 2: Map of U.S. Regions and the Land Areas of the 50 U.S. States and District of Columbia

Student Learning Objectives

- I will be able to distinguish between statistical questions and other types of questions.
- I will be able to formulate and answer my own statistical questions, drawing conclusions based on those answers.
- I will be able to understand the concept of variability within a data set.

NAME:_____ DATE:_____

A statistical question is a question that can be answered by collecting data that vary. For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question. This is because to answer the second question, you would need to determine the ages of all students in your school and there would be variability in those data (since not all students are the same age).

Part 1 – Determine If Questions Are Statistical

Imagine you want to find out about the height of students in your class using statistics. Read each question below and decide if it is a statistical question. Then explain your answer.

	Question	Is it statistical? (Yes/No)	Explanation
1	How tall are you?		
2	How tall, in inches, was Marco on his last birthday?		
3	How tall are the students in your class, in centimeters?		
4	Is Preston taller than 60 inches?		

	Question	Is it statistical? (Yes/No)	Explanation
5	How do the heights of the students in your class compare with the heights of all sixth-graders in your school?		
6	How do the heights of the sixth-graders in your school compare with the heights of the seventh-graders in your school?		
7	How do the heights of the sixth-graders in your school compare with the heights of sixth-graders in a school in another country?		

Part 2 – Look at Data and Statistical Questions

1. Review **Item 1: Radio Set Ownership Map**, which shows the percentage of families that owned a radio in each U.S. state in 1930, and record any observations about the data.

2. Determine which questions in the table below are statistical and if they could be answered using the data in **Item 1**. (You don't have to actually find the answers to the questions!)

	Question	Is it statistical? (Yes/No)	Could it be answered with data from Item 1? (Yes/No)	Explanation
1	What percentage of families in Florida had a radio set in 1930?			
2	Which region of the United States had the lowest rates of radio set ownership in 1930?			
3	In 1930, how much did the radio ownership rates for different states vary?			
4	In 1930, why did a greater percentage of families in California own a radio set compared with families in nearby states?			

Part 3 – Write Your Own Statistical Questions

Use **Item 2: Map of U.S. Regions and the Land Areas of the 50 U.S. States and District of Columbia**, where states are listed in order from largest to smallest area, to complete the following prompts:

- Write three statistical questions that you could answer using data from **Item 2**.
- Use data from **Item 2** to actually answer each question.
- Explain how you found each answer.
- Draw a conclusion about what your answer means for the larger data set.
- Write a related question for each of your statistical questions (but don't answer this one).

Example

Question: How do the areas of each of the three states on the West Coast vary?

Answer: Washington = 66,455 square miles; Oregon = 95,995 square miles; California = 155,858 square miles

Explanation: I found these areas by locating each state in the table.

Conclusion: Each of the three states on the West Coast has a different area, ranging from about 66,000 to 156,000 square miles.

Related Question: How do the areas of the states on the West Coast compare with the areas of the states on the East Coast?

Question 1:

Answer:

Explanation:

Conclusion:

Related Question:

Question 2:

Answer:

Explanation:

Conclusion:

Related Question:

Question 3:

Answer:

Explanation:

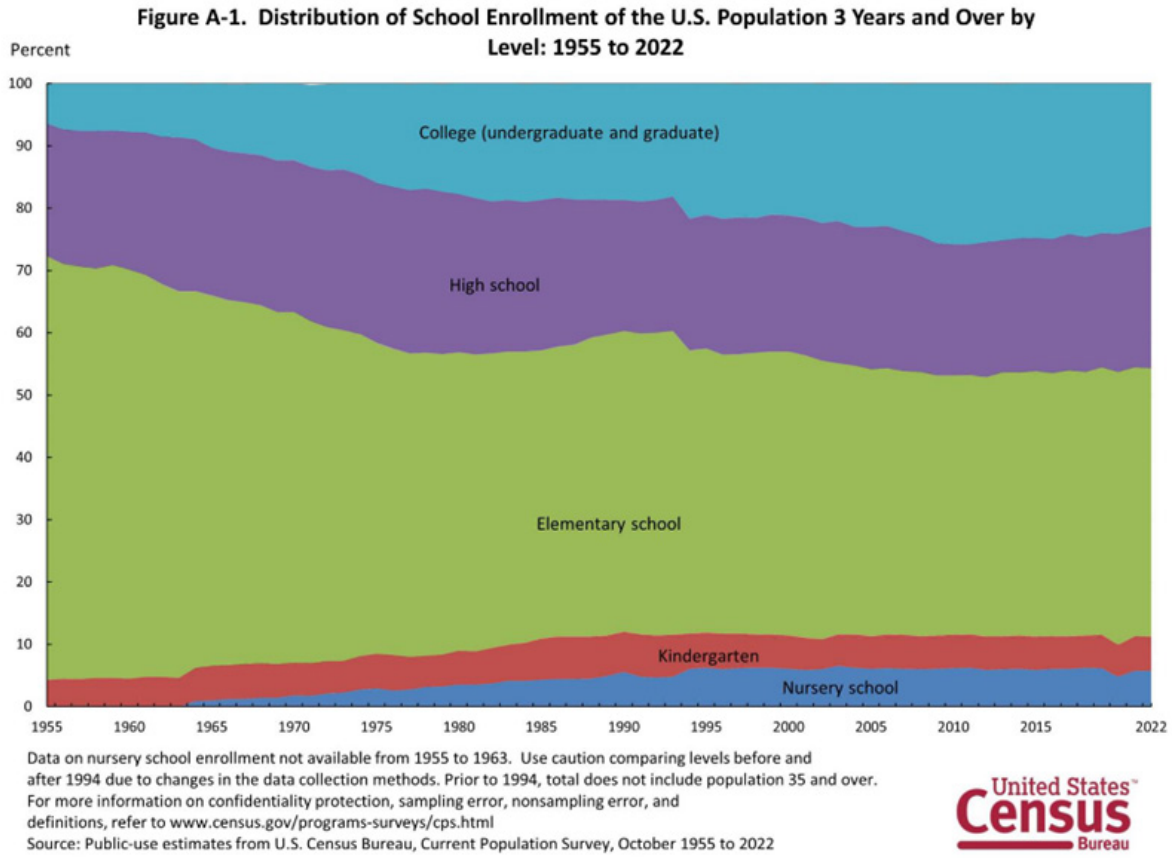
Conclusion:

Related Question:

Part 4 – Draw Conclusions From a Graph (Optional)

The following graph shows the percentages of people aged 3 and older in the United States who were enrolled in school at different levels — ranging from nursery school (pre-K) to college — from 1955 to 2016.

Distribution of School Enrollment of the U.S. Population 3 Years and Older, by Level: 1955 to 2022



https://www.census.gov/content/dam/Census/library/visualizations/time-series/demo/school-enrollment/FigureA-1_2022.pdf

1. Examine the graph and write down any observations about the data or the graph.

2. Write a statistical question that can be answered using data in the graph, answer your question, explain how you found the answer, and write a concluding statement about your answer:

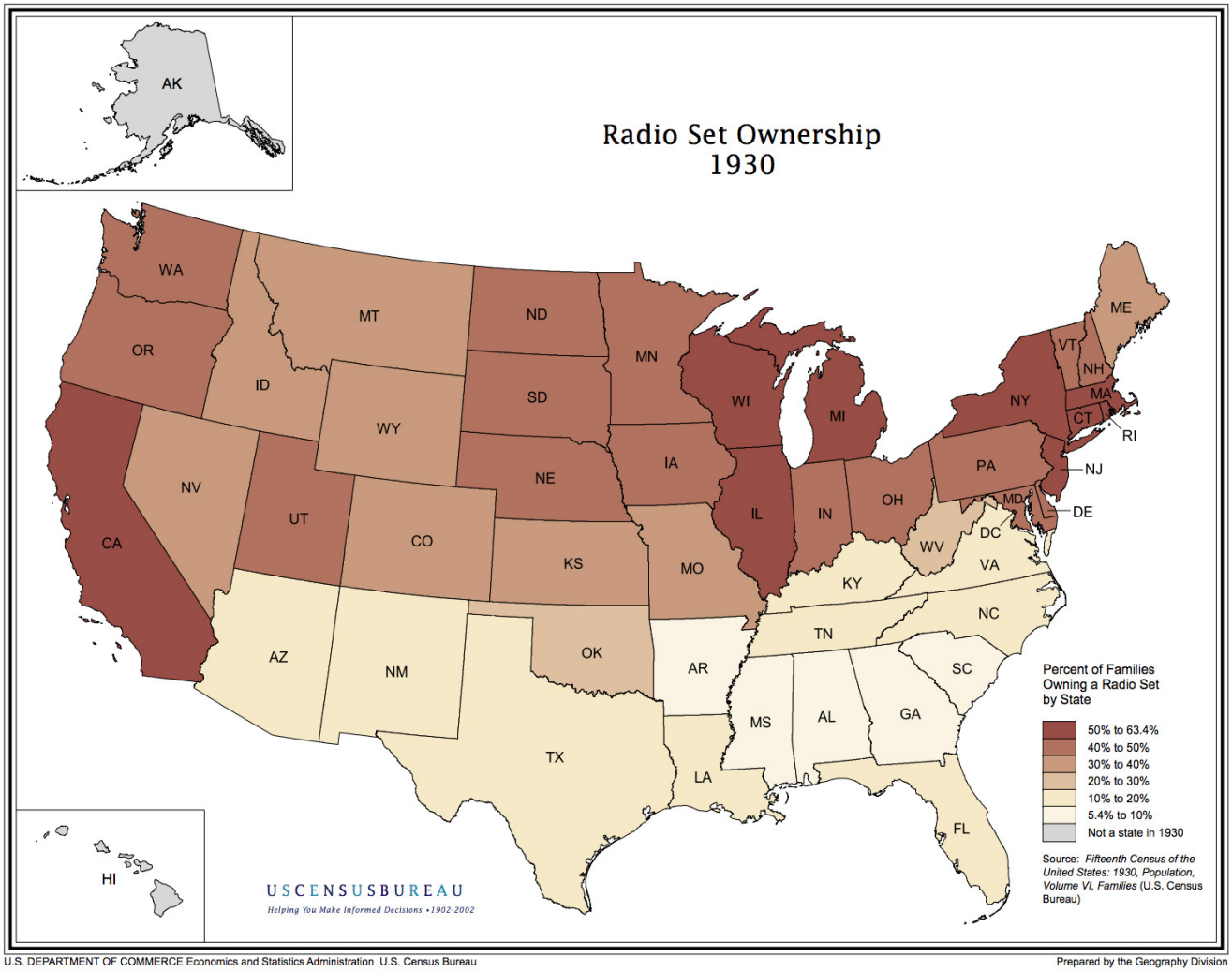
   Question:

   Answer:

   Explanation:

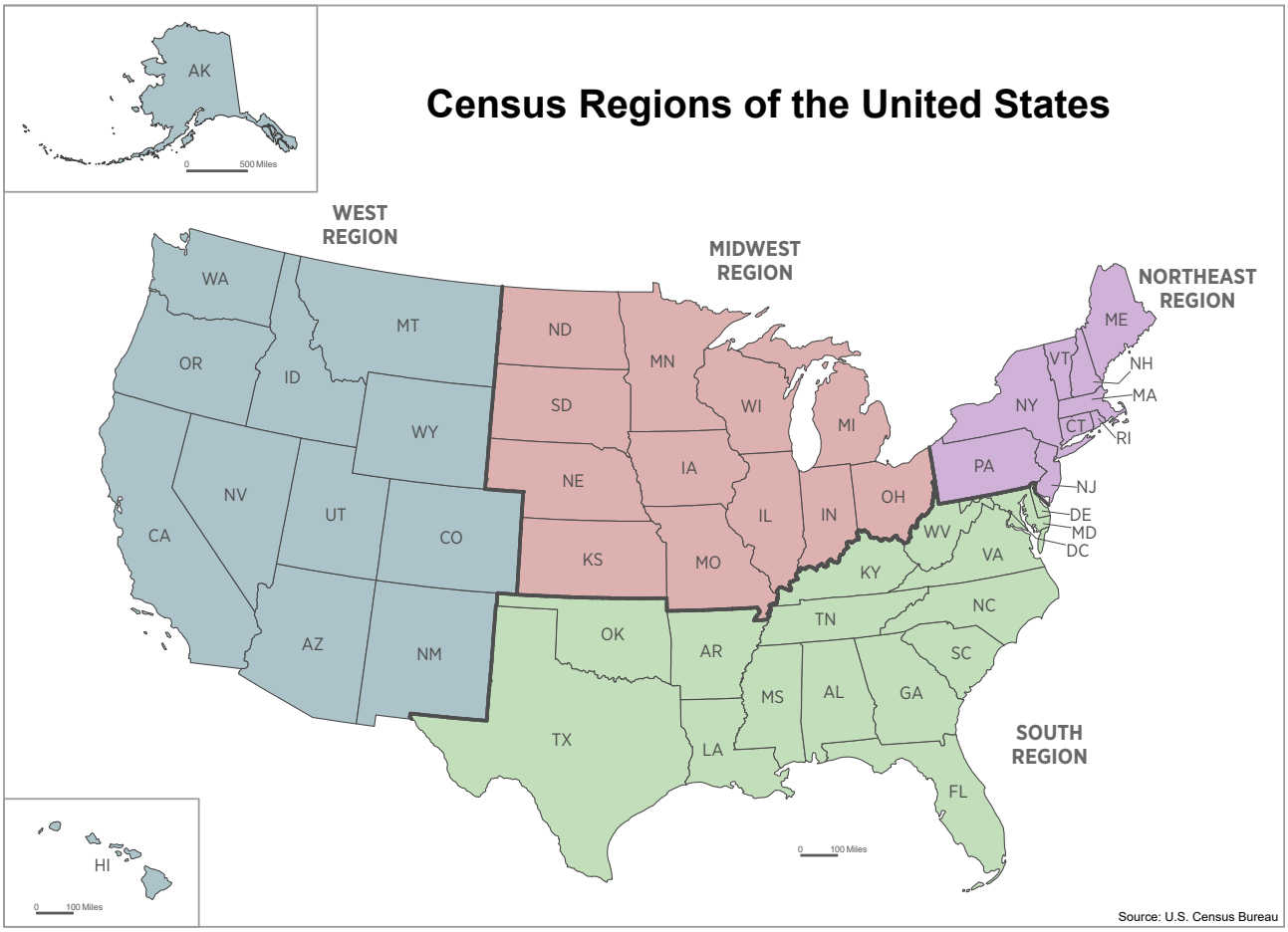
   Conclusion:

Item 1: Radio Set Ownership Map



https://www2.census.gov/geo/pdfs/maps-data/maps/thematic/housing/radios.pdf

Item 2: Map of U.S. Regions and the Land Areas of the 50 U.S. States and District of Columbia



Item 2: Map of U.S. Regions and the Land Areas of the 50 U.S. States and District of Columbia (Continued)

State	Area in Square Miles
United States	3,533,038.28
Alaska	571,022.38
Texas	261,267.85
California	155,858.33
Montana	145,550.36
New Mexico	121,312.75
Arizona	113,653.42
Nevada	109,860.46
Colorado	103,637.06
Wyoming	97,088.76
Oregon	95,995.98
Idaho	82,645.14
Utah	82,376.85
Kansas	81,758.59
Minnesota	79,626.68
Nebraska	76,817.87
South Dakota	75,809.61
North Dakota	68,995.86
Missouri	68,746.48
Oklahoma	68,596.53
Washington	66,455.12
Georgia	57,716.96
Michigan	56,608.22
Iowa	55,853.42
Illinois	55,513.18
Wisconsin	54,167.14

State	Area in Square Miles
Florida	53,652.17
Arkansas	51,992.85
Alabama	50,647.13
North Carolina	48,623.02
New York	47,123.59
Mississippi	46,923.96
Pennsylvania	44,742.27
Louisiana	43,210.23
Tennessee	41,232.49
Ohio	40,858.76
Kentucky	39,491.61
Virginia	39,482.11
Indiana	35,826.03
Maine	30,845.10
South Carolina	30,064.28
West Virginia	24,041.15
Maryland	9,711.20
Vermont	9,217.45
New Hampshire	8,953.75
Massachusetts	7,800.96
New Jersey	7,354.76
Hawaii	6,422.48
Connecticut	4,842.37
Delaware	1,948.55
Rhode Island	1,033.89
District of Columbia	61.13

Source: *https://www.census.gov/quickfacts/*

1 Includes all 50 states and the District of Columbia. These numbers do not include water area.

Visit the QuickFacts data tool at <https://www.census.gov/quickfacts/>.
To find the land area of a specific state, you will need to type the state name into the search bar.
Then, select "land area in square miles, 2020" from the "select a fact" drop down menu.