Practice Questions

1) There are about 20 million people in New York State, with a total land area of about 47,000 square miles.

   What is the population density of New York State?

   A. .0004 people per sq. mile
   B. 426 people per sq. mile
   C. 2,350 people per sq. mile
   D. 940,000 people per sq. mile

Explain your answer:

2) The following chart shows population and area of the five boroughs of New York City.

Borough	Population (2017)	Area (sq. miles)
Bronx	1,471,160	42
Brooklyn	2,648,771	71
Manhattan	1,664,727	23
Queens	2,358,582	109
Staten Island	479,458	59

   Based on the chart, which answer choice lists the boroughs from greatest to least population density?

   A. Manhattan, Brooklyn, Bronx, Queens, Staten Island
   B. Brooklyn, Queens, Manhattan, Bronx, Staten Island
   C. Queens, Brooklyn, Staten Island, Bronx, Manhattan
   D. Manhattan, Queens, Brooklyn, Bronx, Staten Island

Explain your answer:

3) In 2017, the total New York City population was about 8.6 million people. The area of New York City is about 300 square miles. By 2040, the population of New York City is projected to grow by 400,000 people from the 2017 population level. If this happens, what will the population density be for New York City in 2040?

   A. 34.9 ppl/mi^2
   B. 1,333 ppl/mi^2
   C. 28,667 ppl/mi^2
   D. 30,000 ppl/mi^2

Explain your answer:

4) Albany is about 22 square miles in area and has a population density of about 4,500 people/mi^2. What is the population of Albany?

   A. .005 people per square mile
   B. 205 people per square mile
   C. 99,000 people
   D. 205,000 people

Explain your answer:

5) Between 2000 and 2010 in New York State, the population density increased from 345 people per square mile to 352 people per square mile. The land area of New York State is about 55,000 square miles. What was the increase in population?

A. 7 people

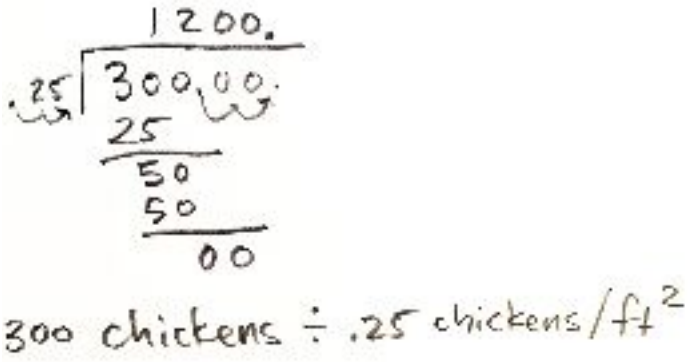
B. 156 people

C. 385,000 people

D. 19,360,000 people

Explain your answer:

6) A farmer did some calculations while planning an addition to her farm. What does the number 1,200 represent in her notes below?



A. How much land is needed to raise the chickens

B. How many chickens will fit in each square foot of land

C. How many chickens the farmer can raise

D. The increase in the population of chickens

7) In New York City there are 7 libraries for every 10 square miles of area. New York City is about 300 square miles in size. About how many libraries are there in New York City?

A. 30

B. 43

C. 70

D. 210

Explain your answer:

8) The approximate 2015 U.S. Census populations and population densities are shown in the table below.

State	Population Density (people/sq. mi.)	Population in 2015
Florida	378	20,270,000
Illinois	232	12,860,000
New York	420	19,800,000
Pennsylvania	286	12,800,000

Based on the table above, which list shows the states' areas in order from largest to smallest?

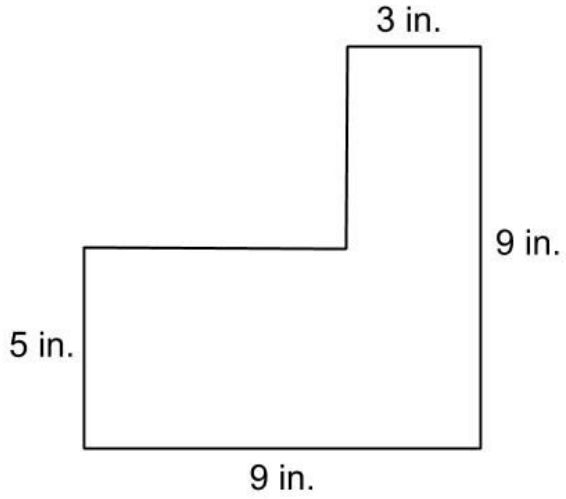
A. New York, Florida, Pennsylvania, Illinois

B. Illinois, Florida, New York, Pennsylvania

C. Florida, New York, Illinois, Pennsylvania

D. Pennsylvania, New York, Florida, Illinois

9) What is the area of this figure?



A. 26 square inches

B. 57 square inches

C. 81 square inches

D. 1,215 square inches

10) There are about 325 million people in the United States, with a total land area of about 3.8 million square miles.

What is the population density of the United States?

A. .001 people per sq. mile

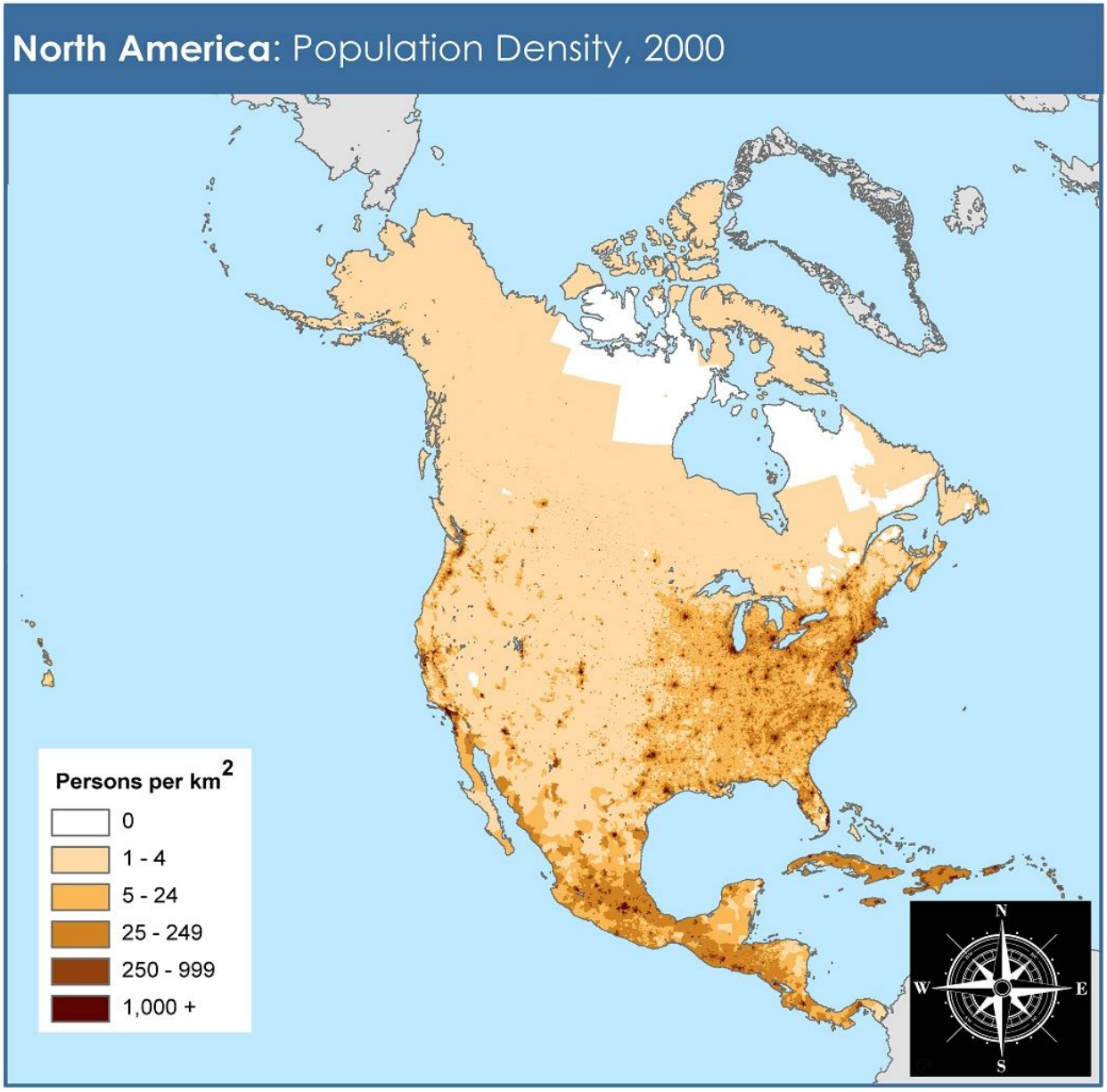
B. 9 people per sq. mile

C. 86 people per sq. mile

D. 1,235 people per sq. mile

Explain your answer:

Look at the map below. You may want to also look at other maps online to identify countries in North America. Then answer the next three questions.



adapted from NASA Socioeconomic Data and Applications Center (http://sedac.ciesin.columbia.edu)

11) Which part of the United States is most densely populated?

A. West
B. Midwest
C. South
D. Northeast

Explain your answer:

12) What is the main reason the far northern part of North America is sparsely populated?

A. low economic opportunities
B. low birth rates
C. extreme weather
D. war and conflict

Explain your answer:

13) One characteristic common to the geographical regions below is that they all...

Siberian Plain
Sahara Desert
Amazon Basin
Antarctica

A. have a low population density
B. are located between major river valleys
C. are major religious centers
D. have large areas of valuable farmland

14) If you know the density and the area, one way to find the population is to...

A. Divide the area by the density
B. Divide the density by the area
C. Divide the population by the area
D. Multiply the density and the area

Practice Questions - Answer Key and Explanations

1) The correct answer is **B** (*426 people per sq. mile*). You can get this answer by imagining all the people in the state spread out evenly over each square mile. The population (20,000,000) divided by the area (47,000) is 425.53, which can be rounded to 426.

   A, C and D are *distractors*, which are answers that look like they might be correct but are not. The people who wrote the test write distracting answers to make you prove you really understand. Don't feel bad if you choose one of these answers. The distractors are based on common mistakes that many people make.

   Here is an explanation of the wrong answers:

   A (*.0004 people per sq. mile*): A person might get this answer if they forget the zeros in 20 million. 20 divided by 47,000 equals .0004. We need to remember that 20 million means 20,000,000. That is the number that should be used in the calculation. We should also stop to think about what .0004 people per square mile would mean. That's much, much less than 1 person for every square mile in New York State. It would mean there were only 20 (twenty) people in the whole state. A population density of .0004 ppl/mi^2 would be similar to the population density of Antarctica, where only about 1,000 scientists live on 5.4 million square miles of land.

   C (*2,350 people per sq. mile*): You will get 2,350 people per sq. mile as an answer if you divide 47,000 by 20. However, it's 20 million, not 20. When you calculate the density, you should use 20,000,000. Also, in calculating population density we usually divide the population by the area, instead of the other way around.

   D (*940,000 people per sq. mile*): Sometimes, if we don't know what to do in a problem, we might grab a couple numbers from the problem and try something. 47,000 multiplied by 20 is 940,000 but this doesn't really make sense with the situation. Multiplying the population by the area doesn't give you the density. If there were 940,000 people per square mile all across New York State, the total population of the state would be 40 billion people. Since there are "only" 7.4 billion people on Earth, this isn't really possible.

2) The correct answer is **A** (*Manhattan, Brooklyn, Bronx, Queens, Staten Island*). To figure out the right answer, you should calculate the population density of each of the 5 boroughs and then see which borough has the most people per square mile. With 72,379 people per square mile, Manhattan has the highest population density of the 5 boroughs. You

can calculate the population density by dividing 1,664,727 (population) by 23 (area). If you live in New York City, you might already know that Manhattan is the most crowded borough from personal experience. It's the business center of the city and is a small island with lots of people crowded together. Brooklyn is the second most dense borough, with 37,307 people per square mile.

Here is an explanation of the wrong answers:

B (*Brooklyn, Queens, Manhattan, Bronx, Staten Island*): This lists the boroughs in order from greatest to least **population**, not population density. With 2.6 million people, Brooklyn has the highest population, but not the highest population density.

C (*Queens, Brooklyn, Staten Island, Bronx, Manhattan*): This lists the boroughs in order from greatest to least **area**, not population density. With 190 square miles in area, Queens is the biggest in land mass, but not in population density.

D (*Manhattan, Queens, Brooklyn, Bronx, Staten Island*): This list is almost correct, except Queens is out of order. The rest of the boroughs are in the right order. Someone might choose this answer if they figured out that Manhattan was the most densely populated, but didn't calculate the density of the other boroughs..

3) D
4) C
5) C
6) A
7) D
8) B
9) B
10) C
11) D
12) C
13) A
14) D