ALBERT

Name _____ Date _____

# Making Inferences from Samples Worksheet

Grade 7 · Common Core 7.SP.A.2

> Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions.

## Practice

Builds the skill step by step.

1. In a random sample of 50 students, 20 prefer basketball. The school has 600 students. Estimate how many prefer basketball.

2. A random sample of 40 marbles from a bag has 10 red marbles. The bag holds 400 marbles. About how many are red?

3. Three random samples of 20 students had 6, 8 and 7 students who play an instrument. Which is the best estimate of the percent of all students who play?

   A. 6%

   B. 21%

   C. 70%

   D. 35%

4. A random sample of 25 pumpkins has a mean weight of 12.4 pounds. What is a good estimate of the mean weight of all the pumpkins in the field?

5. In a random sample of 60 voters, 36 favor a new park. What percent of the sample favors it?

6. A random sample of 100 people in a city of 50,000 finds that 15 bike to work. Which is the best estimate of how many people in the city bike to work?

   A. 15

   B. 750

   C. 15,000

   D. 7,500

7. A biologist catches 30 fish at random from a pond. 12 are trout. Estimate the percent of fish in the pond that are trout.

8. Two random samples of 50 people give 22% and 26% for the same question. What does this show?

   A. One sample must be wrong.

   B. The population changed between samples.

   C. Neither sample is useful.

   D. Random samples vary, so estimates are close but not exact.

9. In a random sample of 80 students, 56 have a phone. Estimate how many of 1,000 students have a phone.

10. A random sample of 20 bags of chips has a mean of 28.2 chips per bag. Estimate the total number of chips in 500 bags.

ALBERT

Name _____ Date _____

# Making Inferences from Samples Worksheet

Grade 7 · Common Core 7.SP.A.2

## On Level

Grade-level practice.

1. Four random samples of 25 students showed 10, 12, 9 and 13 students who want a school dance. Find the mean number per sample. Then estimate how many of 800 students want a dance.

2. Five random samples estimate a population mean as 42, 45, 44, 41 and 43. Which range most likely contains the true mean?

   A. 10 to 20

   B. 50 to 60

   C. 30 to 35

   D. 41 to 45

3. A random sample of 120 customers shows 18 used a coupon. The store had 3,600 customers last month. Estimate how many used a coupon.

4. Biologists tag 50 fish and release them into a lake. Later they catch 80 fish, and 10 have tags. Estimate the number of fish in the lake.

5. Sample A of 20 people estimates 30%. Sample B of 200 people estimates 36%. Both are random. Which estimate is likely more reliable?

   A. Sample A, because it is smaller

   B. Sample B, because it is larger

   C. Both are equally reliable

   D. Neither, because they differ

6. One random sample of 15 test scores has a mean of 82. Another random sample of 15 has a mean of 78. Using both samples, what is a reasonable estimate of the population mean?

7. In a random sample of 200 light bulbs, 6 failed early. A store sells 5,000 bulbs. About how many will fail early?

8. A random sample of 50 seventh graders found a median sleep time of 8.5 hours. Which is the best conclusion?

   A. Every seventh grader sleeps 8.5 hours.

   B. Half of all students sleep exactly 8.5 hours.

   C. The median for all seventh graders is likely near 8.5 hours.

   D. The data can't tell us anything.

9. In a random sample of 40 students, 14 prefer the new menu. Estimate the percent of all students who prefer it.

10. Three random samples of 30 apples had 3, 2 and 4 bruised apples. Estimate how many of 1,800 apples are bruised.

# Making Inferences from Samples Worksheet

Grade 7 · Common Core 7.SP.A.2

## Challenge

Multi-step and word problems that stretch it.

1. A town has 12,000 adults. In random Sample A, 58 of 100 adults support a new pool. In random Sample B, 84 of 150 support it. Combine the samples to estimate how many adults support the pool.

2. Rangers tag 120 deer. Later they spot 90 deer, and 15 have tags. Estimate the deer population.

3. Ten random samples of 20 people gave these percents: 30, 35, 25, 40, 30, 35, 30, 25, 35, 30. Which is the best estimate for the population?

   A. Exactly 30%

   B. 40%

   C. 25%

   D. About 31.5%

4. In one random sample of 60 students, 45 eat breakfast. In a second sample of 60, 39 eat breakfast. By how many percentage points do the sample percents differ?

5. A random sample of 25 households used a mean of 310 gallons of water a day. The town has 4,800 households. Estimate the town's total daily water use.

6. Sam's random sample of 10 students says 70% like the new schedule. Lia's random sample of 100 students says 52%. Which statement is best?

   A. Sam's estimate is better because 70% is a clear majority.

   B. The samples prove nothing.

   C. Both estimates are exactly right.

   D. Lia's estimate is likely closer because her sample is larger.

7. A random sample of 50 phones has 3 with a cracked screen. If 2,000 phones are shipped, estimate how many have cracked screens and how many do not.

8. Random samples from 4 classes gave mean numbers of siblings of 1.6, 1.8, 2.0 and 1.4. Estimate the mean for the school, and find the range of the sample means.

9. A random poll of 400 voters shows 52% for Candidate A. Another random poll of 400 shows 47%. What is the best conclusion?

   A. The race is close, and true support is likely near 50%.

   B. Candidate A will surely win.

   C. Candidate A will surely lose.

   D. The polls are useless.

10. In a random sample of 80 students, 28 play a fall sport and 20 play a spring sport. Estimate how many of 1,200 students play a fall sport and how many play a spring sport.