

8. (S-ID 3) The number of calls received by a technical support center during 18 randomly selected days is listed. Identify the outlier, and describe how it affects the mean and the standard deviation.

50	57	77	66	53	72
51	88	82	70	62	64
69	88	98	65	14	68

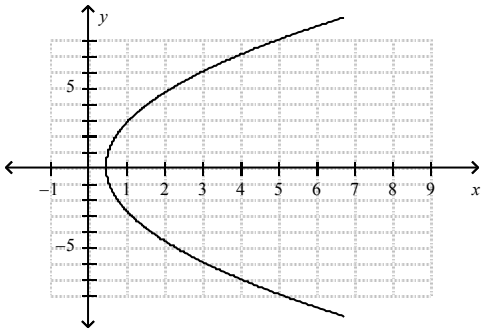
9. (S-IC 1) The Fall Dance Committee surveys 20 eleventh and twelfth graders to see what music they would like to hear at the dance. Identify the population and sample.

10. (S-ID 3) Decide whether the sampling method could result in a biased sample. Explain your reasoning.
A TV station wants to get the opinions of viewers on the look of a new game-show set. The station's staff e-mails a survey to all viewers who have subscribed to their online program guide.

11. (S-IC 5) An oil company plans to add a chemical to its gasoline to make it burn more cleanly. The company conducts an experiment to see whether adding the chemical affects the gasoline mileage of cars using their gasoline.
State the null hypothesis for the experiment.

12. Determine whether the sequence $-1, 7, 15, 23, 31, \dots$ could be an arithmetic sequence. If so, find the common difference and the next three terms in the sequence.

13. (G-GOE 2) Use the Distance Formula to find the equation of a parabola with focus $F(4, 0)$ and directrix $x = -3$.



14. (S-IC 6) In 2009, 1672 cats, 1114 dogs, and 639 other animals (such as rabbits and hamsters) were adopted at an animal shelter. The shelter president wants to survey the people who adopted pets. Classify each sampling method. Which is most accurate? Which is least accurate? Explain your reasoning.

Method A: Leave 300 surveys at the adoption desk for people to pick up and fill out.

Method B: Randomly select 300 people from all of the people who adopted pets.

Method C: Randomly select 100 people who adopted cats, 100 who adopted dogs, and 100 who adopted other animals.

15. (S-IC 4) Voters in Jackson County are going to vote on a half-percent sales tax increase to support music in local schools. According to a random survey, 40% plan to vote for the tax and 60% plan to vote against it. The survey's margin of error is $\pm 6\%$.

Determine whether the survey clearly projects whether the sales tax will pass. Explain your response.

16. (S-ID 4) The heights of adult males in the United States are approximately normally distributed. The mean height is 70 inches (5 feet 10 inches) and the standard deviation is 3 inches.

Use the table to estimate the probability that a randomly-selected male is more than 74.5 inches tall. Express your answer as a decimal.

<i>z</i>	-2.5	-2	-1.5	-1	-0.5	0	0.5	1	1.5	2	2.5
Area	0.01	0.02	0.07	0.16	0.31	0.5	0.69	0.84	0.93	0.98	0.99

4th Quarter Common Assessment
Answer Key

1. C No Partial Credit
2. 6, 11, 21, 41, 81 1 point for first term, 2 points for substituting into formula correctly, 1 point for correct calculations
3. -3, -1, 3, 11, 27 1 point for first term, 2 points for substituting into formula correctly, 1 point for correct calculations
4. $10 - 12 + 12 - 10 + 6 = 6$ 2 points for correct substitution, 1 point for correct expansion, 1 point for correct sum
5. Arithmetic with $d = 28$ 2 points for arithmetic, 2 points for d
6. 255 matches (-1) for the answer 256, 2 points for a correct sequence, 1 point for correctly solving the sequence

7.



Interquartile range: 5.5

8. The outlier is 14. The outlier in the data set causes the mean to decrease from about 69.4 to about 66.3 and the standard deviation to increase from about 13.7 to about 18.6.
9. Population: All eleventh and Twelfth graders at the school
Sample: The 20 students who were surveyed
10. The sample could be biased. Some people who watch the show do not subscribe to the program guide.
11. Adding the chemical does not affect gasoline mileage.
12. Yes; common difference 8; next three terms are 39, 47, 55
13. $x = \frac{1}{14}y^2 + \frac{1}{2}$
14. Method A is a self-selected sample; Method B is a simple random sample, and Method C is a stratified sample.
Method B is the most accurate because every member of the population is equally likely to be included.
Method A is the least accurate because it is likely to overrepresent or underrepresent certain types of people--for instance, people who adopt on weekends may have more time to fill out a survey than those who adopt on weekdays.
15. The survey clearly projects that the sales tax will not pass: between 34% to 46% plan to vote for the tax, and 54% to 66% plan to vote against the tax. The intervals do not overlap, so the survey clearly projects the outcome.
16. 0.93