

Algebra 2 - SIA #4 Practice**Multiple Choice**

Identify the choice that best completes the statement or answers the question.

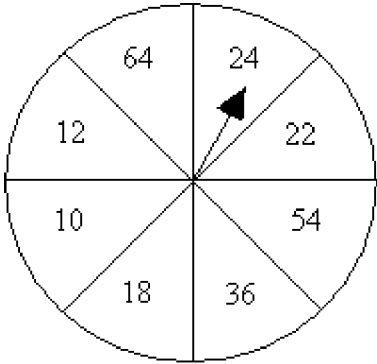
- _____ 1. A yogurt shop offers 6 different flavors of frozen yogurt and 12 different toppings. How many choices are possible for a single serving of frozen yogurt with one topping?
a. 144 b. 72 c. 36 d. 665,280
- _____ 2. Suppose Ruth Ann has 3 routes she can choose from to get from school to the library, and 5 routes from the library to her home. How many routes are there from Ruth Ann's school to her home with a stop at the library?
a. 9 b. 60 c. 15 d. 25
- _____ 3. In how many different orders can you line up 8 cards on a table?
a. 8 b. 1 c. 1,680 d. 40,320
- _____ 4. Verne has 6 math books to line up on a shelf. Jenny has 4 English books to line up on a shelf. In how many more orders can Verne line up his books than Jenny?
a. 24 b. 720 c. 14 d. 696
- _____ 5. In how many ways can 12 basketball players be listed in a program?
a. 665,280 b. 1 c. 479,001,600 d. 12
- _____ 6. Evaluate ${}_9P_4$.
a. 9 b. 362,880 c. 126 d. 3,024
- _____ 7. There are 10 students participating in a spelling bee. In how many ways can the students who go first and second in the bee be chosen?
a. 1 way c. 3,628,800 ways
b. 90 ways d. 45 ways
- _____ 8. Evaluate ${}_7C_6$.
a. 9 b. 1 c. 5,040 d. 7
- _____ 9. Evaluate $\frac{{}_{60}C_3}{{}_{15}C_3}$.
a. 14,190 b. 4 c. 8,555 d. $\frac{6844}{91}$
- _____ 10. The Booster Club sells meals at basketball games. Each meal comes with a choice of hamburgers, pizza, hot dogs, cheeseburgers, or tacos, and a choice of root beer, lemonade, milk, coffee, tea, or cola. How many possible meal combinations are there?
a. 10 b. 11 c. 28 d. 30
- _____ 11. In how many ways can 3 singers be selected from 5 who came to an audition?
a. 1 b. 10 c. 5 d. 60

- _____ 12. There are 6 people on the ballot for regional judges. Voters can vote for any 4. Voters can choose to vote for 0, 1, 2, 3, or 4 judges. In how many different ways can a person vote?
a. 57 b. 5 c. 15 d. 6
- _____ 13. Lynn and Dawn tossed a coin 60 times and got heads 33 times. What is the experimental probability of tossing heads using Lynn and Dawn's results?
a. $\frac{20}{11}$ b. $\frac{9}{20}$ c. $\frac{11}{20}$ d. $\frac{9}{11}$
- _____ 14. A bag contains 6 red marbles, 6 white marbles, and 4 blue marbles. Find $P(\text{red or blue})$.
a. $\frac{2}{3}$ b. $\frac{3}{2}$ c. $\frac{5}{8}$ d. $\frac{3}{4}$
- _____ 15. A bag contains 8 red marbles, 4 white marbles, and 5 blue marbles. Find $P(\text{red and blue})$.
a. $\frac{40}{17}$ b. 0 c. $\frac{12}{17}$ d. $\frac{13}{16}$
- _____ 16. A biologist has determined that a particular osprey has a 70% chance of catching a fish on any given day. Carry out a simulation of twenty trials using the random number table below to find the probability that the osprey will actually catch a fish on all of the next three days. Explain your method.

945	025	354	793	236
106	746	981	105	012
832	180	250	871	835
793	726	864	496	947

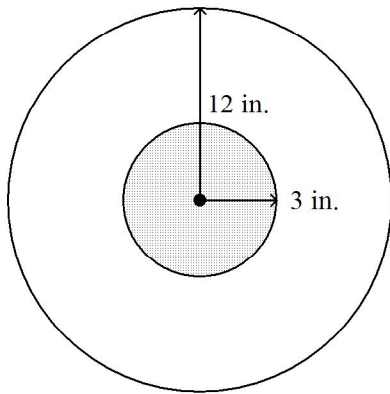
- a. Using the digits 0–7 to represent a caught fish, the probability of catching a fish on each of the next three days is 70%.
- b. Using the digits 0–7 to represent a caught fish, the probability of catching a fish on each of the next three days is 65%.
- c. Using the digits 0–6 to represent a caught fish, the probability of catching a fish on each of the next three days is 35%.
- d. Using the digits 0–7 to represent a caught fish, the probability of catching a fish on each of the next three days is 7%.

- _____ 17. This is a spinner used in a board game. What is the probability that the spinner will land on a multiple of 3 and 4?



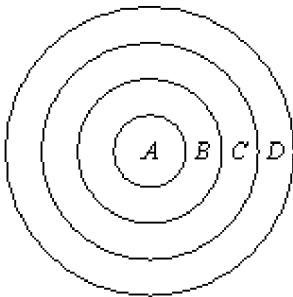
- a. $\frac{1}{4}$ b. $\frac{1}{2}$ c. $\frac{1}{8}$ d. $\frac{3}{8}$
- _____ 18. A spinner is numbered from 1 through 10 with each number equally likely to occur. What is the probability of obtaining a number less than 2 or greater than 7 in a single spin?
- a. $\frac{2}{5}$ b. $\frac{1}{2}$ c. $2\frac{1}{2}$ d. $\frac{3}{10}$
- _____ 19. Teesha is in the French club. There are 29 students in the club. The French teacher will pick two students at random to guide visiting students from France. What is the probability that Teesha will not be picked as a guide?
- a. $\frac{1}{28}$ b. $\frac{28}{29}$ c. $\frac{27}{29}$ d. $\frac{2}{29}$
- _____ 20. What is the theoretical probability of being dealt exactly three 4's in a 5-card hand from a standard 52-card deck?
- a. $\frac{2162}{54145}$ c. $\frac{2}{759}$
 b. $\frac{94}{54145}$ d. $\frac{2}{33}$

- ___ 21. If a dart hits the target at random, what is the probability that it will land in the shaded region?



Drawing not to scale

- a. $\frac{1}{4}$ b. $\frac{1}{16}\pi$ c. $\frac{1}{16}$ d. 16π
- ___ 22. On the following dartboard, the radius of the bulls-eye (area A) is 4 inches. The radius of each concentric circle is 4 inches more than the circle inside it. If a person throws randomly onto the dartboard, what is the probability that the dart will hit in area B ?

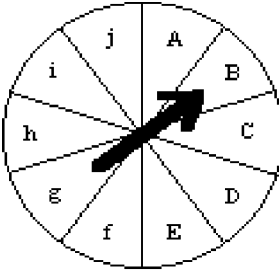


- a. $\frac{3}{16}$ b. $\frac{1}{2}$ c. $\frac{1}{4}$ d. $\frac{1}{16}$
- ___ 23. Suppose Q and R are independent events. Find $P(Q \text{ and } R)$.
 $P(Q) = 0.41$, $P(R) = 0.44$
- a. 0.03 b. 0.1804 c. 0.85 d. 0.0123
- ___ 24. Two urns contain white balls and yellow balls. The first urn contains 9 white balls and 9 yellow balls and the second urn contains 8 white balls and 3 yellow balls. A ball is drawn at random from each urn. What is the probability that both balls are white?
- a. $\frac{4}{11}$ b. $\frac{17}{29}$ c. $\frac{1}{72}$ d. $\frac{17}{198}$

Suppose S and T are mutually exclusive events. Find $P(S \text{ or } T)$.

- ___ 25. $P(S) = 20\%$, $P(T) = 22\%$
- a. 2% b. 440% c. 42% d. 4.4%

- ___ 26. If all possible results are equally likely, what is the probability that a spin of the spinner will land on an upper case letter or a consonant?



- a. 0.9 b. 0.7 c. 0.5 d. 0.3
- ___ 27. Using a sixteen-sided number cube, what is the probability that you will roll an even number or an odd prime number? Round to three decimals.
- a. 0.063 b. 0.813 c. 0.219 d. 0.875
- ___ 28. A jar contains 7 blue cubes, 4 blue spheres, 5 green cubes, and 6 green spheres. If you select an object at random, what is the probability that the object is green or a cube?
- a. $\frac{23}{22}$ c. $\frac{9}{11}$
 b. $\frac{5}{22}$ d. 4
- ___ 29. Joey's sock drawer is unorganized and contains 3 black dress socks, 5 black ankle socks, 7 brown dress socks, and 6 brown ankle socks. What is the probability that Joey will blindly reach into his sock drawer and pull out a sock that is brown or a dress sock?
- a. $\frac{23}{21}$ c. $\frac{16}{21}$
 b. $\frac{1}{3}$ d. 4
- ___ 30. The table shows the results of a survey of students in two math classes. Find $P(\text{more than 1 hour of TV} \mid \text{6th period class})$. Round to the nearest thousandth.

Did You Watch More Than One Hour of TV Last Night?

	Yes	No
3rd period class	11	6
6th period class	13	10

- a. 0.647 b. 0.565 c. 0.435 d. 0.765

- _____ 31. Each person in a group of students was identified by year and asked when he or she preferred taking classes: in the morning, afternoon, or evening. The results are shown in the table. Find the probability that the student preferred afternoon classes given he or she is a junior. Round to the nearest thousandth.

When Do You Prefer to Take Classes?

	Freshman	Sophomore	Junior	Senior
Morning	19	2	6	16
Afternoon	17	3	13	15
Evening	8	14	9	7

- a. 0.571 b. 0.464 c. 0.342 d. 0.158
- _____ 32. The table shows the results of a survey of college students. Find the probability that a student's first class of the day is a humanities class, given the student is male. Round to the nearest thousandth.

First Class of the Day for College Students

	Male	Female
Humanities	70	80
Science	50	80
Other	60	70

- a. 0.171 b. 0.467 c. 0.269 d. 0.389
- _____ 33. The probability that a city bus is ready for service when needed is 84%. The probability that a city bus is ready for service and has a working radio is 67%. Find the probability that a bus chosen at random has a working radio given that it is ready for service. Round to the nearest tenth of a percent.
- a. 17.0% b. 79.8% c. 83.8% d. 12.5%
- _____ 34. The probability that a student at certain high school likes art is 63%. The probability that a student who likes art also likes science is 34%. Find the probability that a student chosen at random likes science given that he or she likes art. Round to the nearest tenth of a percent.
- a. 54% b. 29.0% c. 56.7% d. 18.5%
- _____ 35. The probability that a dessert sold at a certain cafe contains chocolate is 73%. The probability that a dessert containing chocolate also contains nuts is 25%. Find the probability that a dessert chosen at random contains nuts given that it contains chocolate. Round to the nearest tenth of a percent.
- a. 29.2% b. 48.0% c. 34.2% d. 36%
- _____ 36. A class of 40 students has 11 honor students and 10 athletes. Three of the honor students are also athletes. One student is chosen at random. Find the probability that this student is an athlete if it is known that the student is not an honor student. Round to the nearest thousandth.
- a. 0.241 b. 0.345 c. 0.252 d. 0.034
- _____ 37. An airline has 81% of its flights depart on schedule. It has 69% of its flights depart and arrive on schedule. Find the probability that a flight that departs on schedule also arrives on schedule.
- a. 1.25 b. 0.85 c. 0.45 d. 0.43

- _____ 38. On St. Patrick's Day, you took note of who was coming into your restaurant wearing green. What is the probability that someone was wearing green given that the customer is female?

	Wearing Green	Not Wearing Green
Male	42	48
Female	31	47

- a. 0.344 b. 0.538 c. 5.23 d. 0.397

Find the mean, median, and mode of the data set. Round to the nearest tenth.

- _____ 39. 15, 13, 9, 9, 7, 1, 11, 10, 13, 1, 13

- a. mean = 9.3, median = 8, mode = 13 b. mean = 8.5, median = 10, mode = 13 c. mean = 9.3, median = 10, mode = 13 d. mean = 8.5, median = 10, mode = 8

- _____ 40. test scores on a math exam:

88, 89, 65, 62, 83, 63, 84, 63, 74, 64, 71, 82, 66, 88, 79, 60, 86, 63, 93, 99, 60, 85

- a. mean = 75.8, median = 79.5, mode = 63 b. mean = 75.8, median = 76.5, mode = 63 c. mean = 69.5, median = 76.5, mode = 63 d. mean = 69.5, median = 76.5, mode = 79.5

Find the outlier in the set of data.

- _____ 41. 3.4, 4.8, 3.1, 0.2, 6.9, 5.5, 6.6, 5.1

- a. 3.1 b. 0.2 c. 5.1 d. 5.1

- _____ 42. 17, 13, 16, 18, 38, 14, 21, 24

- a. 38 b. 14 c. 16 d. 17

- _____ 43. Over the first five years of owning her car, Gina drove about 12,700 miles the first year, 15,478 miles the second year, 12,675 the third year, 11,850 the fourth year, and 13,075 the fifth year.

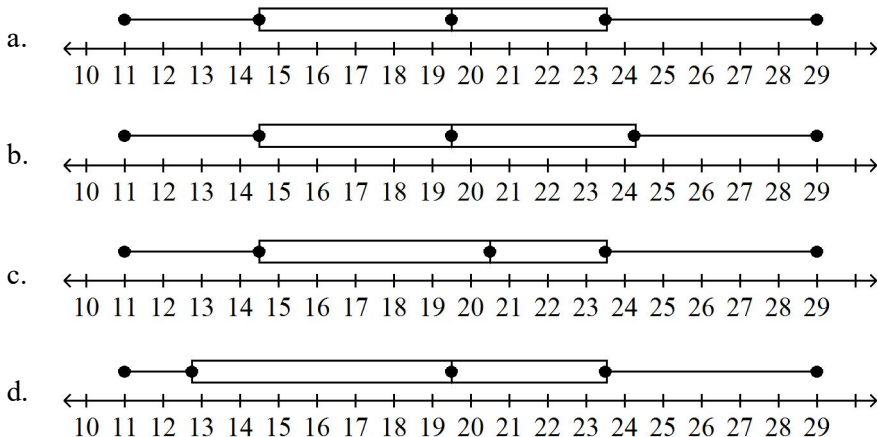
a. Find the mean, median, and mode of this data.

b. Explain which measure of central tendency will best predict how many miles Gina will drive in the sixth year.

- a. mean = 12,700; median = 13,156; no mode; the mean is the best choice because it is representative of the entire data set.
 b. mean = 13,156; median = 12,700; mode = 3,628; the median is the best choice because it is not skewed by the high outlier.
 c. mean = 13,156; median = 12,700; no mode; the mean is the best choice because it is representative of the entire data set.
 d. mean = 13,156; median = 12,700; no mode; the median is the best choice because it is not skewed by the high outlier.

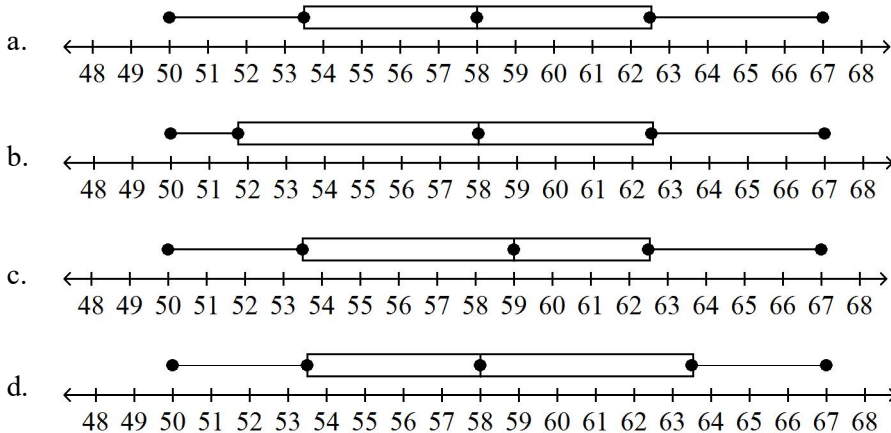
Make a box-and-whisker plot of the data.

44. 24, 18, 29, 21, 16, 23, 13, 11



45. Average daily temperatures in Tucson, Arizona, in December:

67, 57, 52, 51, 64, 58, 67, 58, 55, 59, 66, 50, 57, 62, 58, 50, 58, 50, 60, 63



Find the values of the 30th and 90th percentiles of the data.

46. 129, 113, 200, 100, 105, 132, 100, 176, 146, 152

- | | |
|--|--|
| a. 30th percentile = 105;
90th percentile = 200 | c. 30th percentile = 105;
90th percentile = 176 |
| b. 30th percentile = 113;
90th percentile = 200 | d. 30th percentile = 113;
90th percentile = 176 |

47. 18, 9, 7, 5, 11, 7, 17, 20, 19, 2, 17, 12, 5, 1, 13, 12, 11, 15, 16, 20

- | | |
|---|--|
| a. 30th percentile = 9;
90th percentile = 20 | c. 30th percentile = 11;
90th percentile = 19 |
| b. 30th percentile = 9;
90th percentile = 19 | d. 30th percentile = 7;
90th percentile = 20 |

- _____ 48. In this set of data, at what percentile is 10? At what percentile is 18?
10, 10, 10, 12, 14, 16, 16, 18, 18, 18
- a. 10 is at the 10th percentile;
18 is at the 80th percentile.
- b. 10 is at the 20th percentile;
18 is at the 100th percentile.
- c. 10 is at the 30th percentile;
18 is at the 90th percentile.
- d. 10 is at the 0th percentile;
18 is at the 70th percentile.

What are the mean, variance, and standard deviation of these values? Round to the nearest tenth.

- _____ 49. 11, 11, 3, 1, 11, 11
- a. mean = 8
variance = 2.1;
standard deviation = 4.7
- b. mean = 11
variance = 2.1;
standard deviation = 4.3
- c. mean = 11
variance = 18.3;
standard deviation = 4.7
- d. mean = 8
variance = 18.3;
standard deviation = 4.3
- _____ 50. 92, 97, 53, 90, 95, 98
- a. mean = 93.5
variance = 245.6;
standard deviation = 17.2
- b. mean = 87.5
variance = 245.6;
standard deviation = 15.7
- c. mean = 87.5
variance = 4;
standard deviation = 15.7
- d. mean = 93.5
variance = 4;
standard deviation = 17.2

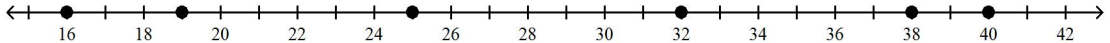
_____ 51.

x	$x - \bar{x}$	$(x - \bar{x})^2$
53	5.4	29.2
51	3.4	11.6
48	0.4	0.2
49	1.4	2
37	-10.6	112.4

- a. mean = 47.6
variance = 31
standard deviation = 5.6
- b. mean = 208.4
variance = 31
standard deviation = 5.6
- c. mean = 47.6
variance = 65.3
standard deviation = 5.6
- d. mean = 47.6
variance = 31
standard deviation = 963.5

Use a calculator to find the mean and standard deviation of the data. Round to the nearest tenth.

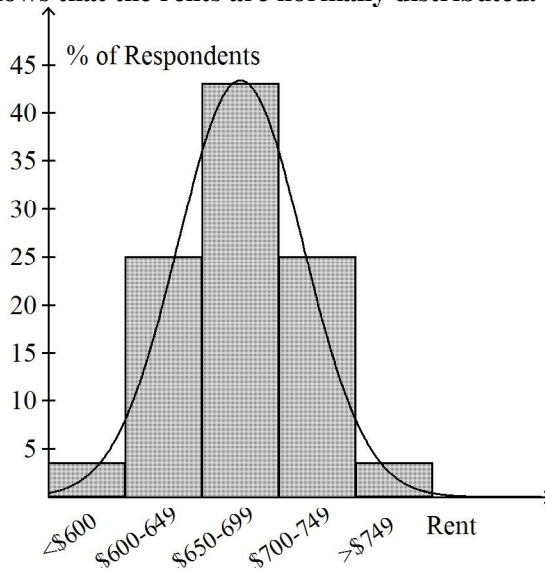
- _____ 52. 20, 16, 18, 14, 9, 20, 16
- a. mean = 16;
standard deviation = 3.6
- b. mean = 16.1;
standard deviation = 3.6
- c. mean = 16;
standard deviation = 12.7
- d. mean = 16.1;
standard deviation = 12.7

- _____ 53. 946, 726, 956, 519, 104, 415, 428, 457, 614, 201, 772, 801
- a. mean = 578.3; standard deviation = 68572.4
 b. mean = 566.5; standard deviation = 261.9
 c. mean = 566.5; standard deviation = 68572.4
 d. mean = 578.3; standard deviation = 261.9
- _____ 54. The height (in feet) of a sample of trees in the school playground:
 12.5, 9.8, 13.5, 11.2, 12.3, 14.2, 11.7, 9.8, 12.6, 10.4
- a. mean = 11.8 ft; standard deviation = 1.43 ft
 b. mean = 13.1 ft; standard deviation = 1.43 ft
 c. mean = 11.8 ft; standard deviation = 4.52 ft
 d. mean = 13.1 ft; standard deviation = 4.52 ft
- _____ 55. Susan keeps track of the number of tickets sold for each play presented at The Community Theater. Within how many standard deviations of the mean do all the values fall?
 135, 71, 69, 80, 158, 152, 161, 96, 122, 118, 87, 85
- a. 3 b. 4 c. 5 d. 2
- _____ 56. Mrs. Jones Algebra 2 class scored very well on yesterday's quiz. With one exception, everyone received an A. Within how many standard deviations of the mean do all the quiz grades fall?
 91, 92, 94, 88, 96, 99, 91, 93, 94, 97, 95, 97
- a. 2 b. 1 c. 3 d. 4
- _____ 57. The graph below displays how many pieces of candy Timmy and his five friends each received last Halloween. Within how many standard deviations of the mean do the values fall?
- 
- a. 1 b. 2 c. 3 d. 4
- _____ 58. A survey of high school juniors found that 82% of students plan on attending college. If you pick three students at random, what is the probability that at least two plan on attending college? Round to the nearest percent.
- a. 91% b. 9% c. 45% d. 36%
- _____ 59. A poll shows that 76% of voters in a city favor an initiative to increase spending on public schools. If 10 voters are selected at random, what is the probability that exactly five of them will vote in favor of the initiative?
- a. 5.1% b. 10% c. 27% d. 15%
- _____ 60. According to one study, 61% of the population swallow at least one spider per year in their sleep. Based on this study, what is the probability that exactly 7 of 10 randomly selected people have swallowed at least one spider in their sleep in the last year?
- a. 70% c. 1%
 b. 22% d. 34%

Use the Binomial Theorem to find the binomial expansion of the expression.

- _____ 61. $(s - 5v)^5$
- $s^5 - 5s^4v + 10s^3v^2 - 10s^2v^3 + 5sv^4 - v^5$
 - $s^5 + 125s^4v - 1250s^3v^2 + 6250s^2v^3 - 15625sv^4 + 15625v^5$
 - $s^5 - 25s^4v + 250s^3v^2 - 1250s^2v^3 + 3125sv^4 - 3125v^5$
 - $s^5 - 25s^4 + 250s^3 - 1250s^2 + 3125s - 3125$
- _____ 62. $(d - 5)^6$
- $d^6 + 6d^5 + 15d^4 + 20d^3 + 15d^2 + 6d + 1$
 - $d^6 - 6d^5 + 15d^4 - 20d^3 + 15d^2 - 6d + 1$
 - $d^6 + 30d^5 + 375d^4 + 2500d^3 + 9375d^2 + 18750d + + 15625$
 - $d^6 - 30d^5 + 375d^4 - 2500d^3 + 9375d^2 - 18750d + 15625$
- _____ 63. $(d + 3)^7$
- $d^7 + 21d^6 + 189d^5 + 945d^4 + 2835d^3 + 5103d^2 + 5103d + 2187$
 - $d^7 - 7d^6 + 21d^5 - 35d^4 + 35d^3 - 20d^2 + 7d - 1$
 - $d^7 + 7d^6 + 21d^5 + 35d^4 + 35d^3 + 20d^2 + 7d + 1$
 - $d^7 - 21d^6 + 189d^5 - 945d^4 + 2835d^3 - 5103d^2 + 5103d - 2187$

The bar graph shows the rents paid per month for apartments in an urban neighborhood. The curve shows that the rents are normally distributed.



- _____ 64. Estimate the percent of apartment residents who pay from \$600 to \$749 per month.
- 93%
 - 68%
 - 43%
 - 25%
- _____ 65. Estimate the percent of apartment residents who pay from \$700 to \$749 per month.
- 68%
 - 3%
 - 25%
 - 93%

- _____ 66. Estimate the percent of apartment residents who pay less than \$650 per month.
- a. 99% b. 25% c. 68% d. 3%
- _____ 67. The scores on an exam are normally distributed, with a mean of 77 and a standard deviation of 10. What percent of the scores are greater than 87?
- a. 68% b. 16% c. 84% d. 2.5%
- _____ 68. A grocery store will only accept yellow onions that are at least 3 in. in diameter. A grower has a crop of onions with diameters that are normally distributed, with a mean diameter of 3.25 in. and a standard deviation of 0.25 in. What percent of the onions will be accepted by the grocery store?
- a. 34% b. 97.5% c. 84% d. 50%
- _____ 69. The numbers of cookies in a shipment of bags are normally distributed, with a mean of 64 and a standard deviation of 4. What percent of bags of cookies will contain between 60 and 68 cookies?
- a. 50% b. 13.5% c. 68% d. 34%
- _____ 70. Betty's Bite-Size Candies are packaged in bags. The number of candies per bag is normally distributed, with a mean of 50 candies and a standard deviation of 3. At a quality control checkpoint, a sample of bags is checked, and 4 bags contain fewer than 47 candies. How many bags were probably taken as samples?
- a. 25 bags b. 12 bags c. 8 bags d. 5 bags
- _____ 71. Define a simulation to represent correct answers on a true-or-false quiz. Use the simulation to find the probability of getting exactly 4 correct answers on a ten-question quiz.
- a. Let the number 1 represent a correct answer and the number 0 represent an incorrect answer. Then a quiz is represented by randomly generating a 1 or 0 ten times. The probability of getting exactly 4 correct answers on a ten-question true-or-false quiz is
- $$\frac{2^{10}}{_{10}C_4} = \frac{105}{512}.$$
- b. 2
c. 3
d. 4

Algebra 2 - SIA #4 Practice Answer Section

MULTIPLE CHOICE

1. ANS: B PTS: 1 DIF: L2
REF: 11-1 Permutations and Combinations OBJ: 11-1.1 To count permutations
NAT: D.4.e|D.4.j TOP: 11-1 Problem 1 Using the Fundamental Counting Principle
KEY: Fundamental Counting Principle DOK: DOK 1
2. ANS: C PTS: 1 DIF: L3
REF: 11-1 Permutations and Combinations OBJ: 11-1.1 To count permutations
NAT: D.4.e|D.4.j TOP: 11-1 Problem 1 Using the Fundamental Counting Principle
KEY: Fundamental Counting Principle DOK: DOK 1
3. ANS: D PTS: 1 DIF: L2
REF: 11-1 Permutations and Combinations OBJ: 11-1.1 To count permutations
NAT: D.4.e|D.4.j TOP: 11-1 Problem 2 Find the Number of Permutations of n Items
KEY: Fundamental Counting Principle | permutation | n factorial
DOK: DOK 1
4. ANS: D PTS: 1 DIF: L3
REF: 11-1 Permutations and Combinations OBJ: 11-1.1 To count permutations
NAT: D.4.e|D.4.j TOP: 11-1 Problem 2 Find the Number of Permutations of n Items
KEY: permutation | Fundamental Counting Principle | n factorial
DOK: DOK 1
5. ANS: C PTS: 1 DIF: L3
REF: 11-1 Permutations and Combinations OBJ: 11-1.1 To count permutations
NAT: D.4.e|D.4.j TOP: 11-1 Problem 2 Find the Number of Permutations of n Items
KEY: permutation | Fundamental Counting Principle | n factorial
DOK: DOK 1
6. ANS: D PTS: 1 DIF: L2
REF: 11-1 Permutations and Combinations OBJ: 11-1.1 To count permutations
NAT: D.4.e|D.4.j TOP: 11-1 Problem 3 Finding nPr
KEY: permutation | Fundamental Counting Principle | n factorial
DOK: DOK 1
7. ANS: B PTS: 1 DIF: L3
REF: 11-1 Permutations and Combinations OBJ: 11-1.1 To count permutations
NAT: D.4.e|D.4.j TOP: 11-1 Problem 3 Finding nPr
KEY: permutation | Fundamental Counting Principle | n factorial
DOK: DOK 2
8. ANS: D PTS: 1 DIF: L2
REF: 11-1 Permutations and Combinations OBJ: 11-1.2 To count combinations
NAT: D.4.e|D.4.j TOP: 11-1 Problem 4 Finding nCr KEY: combination | n factorial
DOK: DOK 1
9. ANS: D PTS: 1 DIF: L4
REF: 11-1 Permutations and Combinations OBJ: 11-1.2 To count combinations
NAT: D.4.e|D.4.j TOP: 11-1 Problem 4 Finding nCr KEY: combination | n factorial
DOK: DOK 1

10. ANS: D PTS: 1 DIF: L3
REF: 11-1 Permutations and Combinations OBJ: 11-1.2 To count combinations
NAT: D.4.e|D.4.j TOP: 11-1 Problem 4 Finding nCr
KEY: permutation | Fundamental Counting Principle | n factorial
DOK: DOK 2
11. ANS: B PTS: 1 DIF: L2
REF: 11-1 Permutations and Combinations OBJ: 11-1.2 To count combinations
NAT: D.4.e|D.4.j TOP: 11-1 Problem 5 Identifying Whether Order is Important
KEY: permutation | combination | n factorial DOK: DOK 2
12. ANS: A PTS: 1 DIF: L3
REF: 11-1 Permutations and Combinations OBJ: 11-1.2 To count combinations
NAT: D.4.e|D.4.j TOP: 11-1 Problem 5 Identifying Whether Order is Important
KEY: combination | n factorial | permutation DOK: DOK 2
13. ANS: C PTS: 1 DIF: L3 REF: 11-2 Probability
OBJ: 11-2.1 To find the probability of an event using theoretical, experimental, and simulation methods
NAT: D.4.c|D.4.d|D.4.j TOP: 11-2 Problem 1 Finding Experimental Probability
KEY: experimental probability DOK: DOK 1
14. ANS: C PTS: 1 DIF: L3 REF: 11-2 Probability
OBJ: 11-2.1 To find the probability of an event using theoretical, experimental, and simulation methods
NAT: D.4.c|D.4.d|D.4.j TOP: 11-2 Problem 1 Finding Experimental Probability
KEY: experimental probability DOK: DOK 2
15. ANS: B PTS: 1 DIF: L3 REF: 11-2 Probability
OBJ: 11-2.1 To find the probability of an event using theoretical, experimental, and simulation methods
NAT: D.4.c|D.4.d|D.4.j TOP: 11-2 Problem 1 Finding Experimental Probability
KEY: experimental probability DOK: DOK 2
16. ANS: C PTS: 1 DIF: L3 REF: 11-2 Probability
OBJ: 11-2.1 To find the probability of an event using theoretical, experimental, and simulation methods
NAT: D.4.c|D.4.d|D.4.j TOP: 11-2 Problem 2 Using a Simulation
KEY: experimental probability | simulation DOK: DOK 3
17. ANS: D PTS: 1 DIF: L3 REF: 11-2 Probability
OBJ: 11-2.1 To find the probability of an event using theoretical, experimental, and simulation methods
NAT: D.4.c|D.4.d|D.4.j TOP: 11-2 Problem 3 Finding Theoretical Probability
KEY: theoretical probability DOK: DOK 2
18. ANS: A PTS: 1 DIF: L3 REF: 11-2 Probability
OBJ: 11-2.1 To find the probability of an event using theoretical, experimental, and simulation methods
NAT: D.4.c|D.4.d|D.4.j TOP: 11-2 Problem 3 Finding Theoretical Probability
KEY: theoretical probability DOK: DOK 2
19. ANS: C PTS: 1 DIF: L4 REF: 11-2 Probability
OBJ: 11-2.1 To find the probability of an event using theoretical, experimental, and simulation methods
NAT: D.4.c|D.4.d|D.4.j TOP: 11-2 Problem 3 Finding Theoretical Probability
KEY: theoretical probability DOK: DOK 2
20. ANS: B PTS: 1 DIF: L3 REF: 11-2 Probability
OBJ: 11-2.1 To find the probability of an event using theoretical, experimental, and simulation methods
NAT: D.4.c|D.4.d|D.4.j TOP: 11-2 Problem 4 Finding Probability Using Combinatorics
KEY: theoretical probability | sample space DOK: DOK 2

21. ANS: C PTS: 1 DIF: L3 REF: 11-2 Probability
 OBJ: 11-2.1 To find the probability of an event using theoretical, experimental, and simulation methods
 NAT: D.4.c| D.4.d| D.4.j TOP: 11-2 Problem 5 Finding Geometric Probability
 DOK: DOK 2
22. ANS: A PTS: 1 DIF: L4 REF: 11-2 Probability
 OBJ: 11-2.1 To find the probability of an event using theoretical, experimental, and simulation methods
 NAT: D.4.c| D.4.d| D.4.j TOP: 11-2 Problem 5 Finding Geometric Probability
 KEY: theoretical probability DOK: DOK 2
23. ANS: B PTS: 1 DIF: L2 REF: 11-3 Probability of Multiple Events
 OBJ: 11-3.1 To find the probability of the event A and B NAT: D.4.a| D.4.b| D.4.c| D.4.h| D.4.j
 TOP: 11-3 Problem 2 Finding the Probability of Independent Events
 KEY: independent events DOK: DOK 1
24. ANS: A PTS: 1 DIF: L3 REF: 11-3 Probability of Multiple Events
 OBJ: 11-3.1 To find the probability of the event A and B NAT: D.4.a| D.4.b| D.4.c| D.4.h| D.4.j
 TOP: 11-3 Problem 2 Finding the Probability of Independent Events
 KEY: independent events DOK: DOK 2
25. ANS: C PTS: 1 DIF: L3 REF: 11-3 Probability of Multiple Events
 OBJ: 11-3.2 To find the probability of the event A or B NAT: D.4.a| D.4.b| D.4.c| D.4.h| D.4.j
 TOP: 11-3 Problem 4 Finding Probability for Mutually Exclusive Events
 KEY: mutually exclusive events DOK: DOK 1
26. ANS: A PTS: 1 DIF: L3 REF: 11-3 Probability of Multiple Events
 OBJ: 11-3.2 To find the probability of the event A or B NAT: D.4.a| D.4.b| D.4.c| D.4.h| D.4.j
 TOP: 11-3 Problem 4 Finding Probability for Mutually Exclusive Events
 KEY: probability | mutually exclusive events DOK: DOK 2
27. ANS: B PTS: 1 DIF: L3 REF: 11-3 Probability of Multiple Events
 OBJ: 11-3.2 To find the probability of the event A or B NAT: D.4.a| D.4.b| D.4.c| D.4.h| D.4.j
 TOP: 11-3 Problem 4 Finding Probability for Mutually Exclusive Events
 KEY: mutually exclusive events DOK: DOK 2
28. ANS: C PTS: 1 DIF: L3 REF: 11-3 Probability of Multiple Events
 OBJ: 11-3.2 To find the probability of the event A or B NAT: D.4.a| D.4.b| D.4.c| D.4.h| D.4.j
 TOP: 11-3 Problem 5 Finding Probability DOK: DOK 2
29. ANS: C PTS: 1 DIF: L3 REF: 11-3 Probability of Multiple Events
 OBJ: 11-3.2 To find the probability of the event A or B NAT: D.4.a| D.4.b| D.4.c| D.4.h| D.4.j
 TOP: 11-3 Problem 5 Finding Probability DOK: DOK 2
30. ANS: B PTS: 1 DIF: L2 REF: 11-4 Conditional Probability
 OBJ: 11-4.1 To find conditional probabilities NAT: D.4.b| D.4.c| D.4.i| D.4.j
 TOP: 11-4 Problem 1 Finding Conditional Probability KEY: conditional probability
 DOK: DOK 2
31. ANS: B PTS: 1 DIF: L3 REF: 11-4 Conditional Probability
 OBJ: 11-4.1 To find conditional probabilities NAT: D.4.b| D.4.c| D.4.i| D.4.j
 TOP: 11-4 Problem 1 Finding Conditional Probability KEY: conditional probability
 DOK: DOK 2
32. ANS: D PTS: 1 DIF: L3 REF: 11-4 Conditional Probability
 OBJ: 11-4.1 To find conditional probabilities NAT: D.4.b| D.4.c| D.4.i| D.4.j
 TOP: 11-4 Problem 1 Finding Conditional Probability KEY: conditional probability
 DOK: DOK 2

33. ANS: B PTS: 1 DIF: L3 REF: 11-4 Conditional Probability
OBJ: 11-4.1 To find conditional probabilities NAT: D.4.b|D.4.c|D.4.i|D.4.j
TOP: 11-4 Problem 2 Conditional Probability in Statistics KEY: conditional probability
DOK: DOK 2
34. ANS: A PTS: 1 DIF: L3 REF: 11-4 Conditional Probability
OBJ: 11-4.1 To find conditional probabilities NAT: D.4.b|D.4.c|D.4.i|D.4.j
TOP: 11-4 Problem 2 Conditional Probability in Statistics KEY: conditional probability
DOK: DOK 2
35. ANS: C PTS: 1 DIF: L3 REF: 11-4 Conditional Probability
OBJ: 11-4.1 To find conditional probabilities NAT: D.4.b|D.4.c|D.4.i|D.4.j
TOP: 11-4 Problem 2 Conditional Probability in Statistics KEY: conditional probability
DOK: DOK 2
36. ANS: A PTS: 1 DIF: L4 REF: 11-4 Conditional Probability
OBJ: 11-4.2 To use formulas and tree diagrams NAT: D.4.b|D.4.c|D.4.i|D.4.j
TOP: 11-4 Problem 3 Using the Conditional Probability Formula
KEY: conditional probability DOK: DOK 2
37. ANS: B PTS: 1 DIF: L4 REF: 11-4 Conditional Probability
OBJ: 11-4.2 To use formulas and tree diagrams NAT: D.4.b|D.4.c|D.4.i|D.4.j
TOP: 11-4 Problem 3 Using the Conditional Probability Formula
KEY: conditional probability DOK: DOK 3
38. ANS: D PTS: 1 DIF: L4 REF: 11-4 Conditional Probability
OBJ: 11-4.2 To use formulas and tree diagrams NAT: D.4.b|D.4.c|D.4.i|D.4.j
TOP: 11-4 Problem 3 Using the Conditional Probability Formula
KEY: conditional probability DOK: DOK 2
39. ANS: C PTS: 1 DIF: L2 REF: 11-5 Analyzing Data
OBJ: 11-5.1 To calculate measures of central tendency NAT: D.1.a|D.1.b|D.2.c|D.1.e|D.2.a
TOP: 11-5 Problem 1 Finding Measures of Central Tendency
KEY: measure of central tendency | mean | median | mode DOK: DOK 1
40. ANS: B PTS: 1 DIF: L2 REF: 11-5 Analyzing Data
OBJ: 11-5.1 To calculate measures of central tendency NAT: D.1.a|D.1.b|D.2.c|D.1.e|D.2.a
TOP: 11-5 Problem 1 Finding Measures of Central Tendency
KEY: measure of central tendency | mean | median | mode DOK: DOK 1
41. ANS: B PTS: 1 DIF: L2 REF: 11-5 Analyzing Data
OBJ: 11-5.1 To calculate measures of central tendency NAT: D.1.a|D.1.b|D.2.c|D.1.e|D.2.a
TOP: 11-5 Problem 2 Identifying an Outlier KEY: outlier
DOK: DOK 1
42. ANS: A PTS: 1 DIF: L3 REF: 11-5 Analyzing Data
OBJ: 11-5.1 To calculate measures of central tendency NAT: D.1.a|D.1.b|D.2.c|D.1.e|D.2.a
TOP: 11-5 Problem 2 Identifying an Outlier KEY: outlier
DOK: DOK 1
43. ANS: D PTS: 1 DIF: L3 REF: 11-5 Analyzing Data
OBJ: 11-5.1 To calculate measures of central tendency NAT: D.1.a|D.1.b|D.2.c|D.1.e|D.2.a
TOP: 11-5 Problem 3 Comparing Data Sets
KEY: measure of central tendency | mean | median | mode | range of a set of data | interquartile range
DOK: DOK 2

44. ANS: A PTS: 1 DIF: L2 REF: 11-5 Analyzing Data
 OBJ: 11-5.2 To draw and interpret box-and-whisker plots NAT: D.1.a| D.1.b| D.2.c| D.1.e| D.2.a
 TOP: 11-5 Problem 4 Using a Box-and-Whisker Plot
 KEY: median | quartile | box-and-whisker plot DOK: DOK 2
45. ANS: A PTS: 1 DIF: L3 REF: 11-5 Analyzing Data
 OBJ: 11-5.2 To draw and interpret box-and-whisker plots NAT: D.1.a| D.1.b| D.2.c| D.1.e| D.2.a
 TOP: 11-5 Problem 4 Using a Box-and-Whisker Plot
 KEY: median | quartile | box-and-whisker plot DOK: DOK 2
46. ANS: B PTS: 1 DIF: L2 REF: 11-5 Analyzing Data
 OBJ: 11-5.2 To draw and interpret box-and-whisker plots NAT: D.1.a| D.1.b| D.2.c| D.1.e| D.2.a
 TOP: 11-5 Problem 5 Finding Percentiles
 DOK: DOK 2 KEY: percentile
47. ANS: A PTS: 1 DIF: L3 REF: 11-5 Analyzing Data
 OBJ: 11-5.2 To draw and interpret box-and-whisker plots NAT: D.1.a| D.1.b| D.2.c| D.1.e| D.2.a
 TOP: 11-5 Problem 5 Finding Percentiles
 DOK: DOK 2 KEY: percentile
48. ANS: D PTS: 1 DIF: L3 REF: 11-5 Analyzing Data
 OBJ: 11-5.2 To draw and interpret box-and-whisker plots NAT: D.1.a| D.1.b| D.2.c| D.1.e| D.2.a
 TOP: 11-5 Problem 5 Finding Percentiles
 DOK: DOK 2 KEY: percentile
49. ANS: D PTS: 1 DIF: L3 REF: 11-6 Standard Deviation
 OBJ: 11-6.1 To find the standard deviation and variance of a set of values
 NAT: D.1.c TOP: 11-6 Problem 1 Finding Variance and Standard Deviation
 KEY: standard deviation | variance DOK: DOK 2
50. ANS: B PTS: 1 DIF: L3 REF: 11-6 Standard Deviation
 OBJ: 11-6.1 To find the standard deviation and variance of a set of values
 NAT: D.1.c TOP: 11-6 Problem 1 Finding Variance and Standard Deviation
 KEY: standard deviation | variance DOK: DOK 2
51. ANS: A PTS: 1 DIF: L2 REF: 11-6 Standard Deviation
 OBJ: 11-6.1 To find the standard deviation and variance of a set of values
 NAT: D.1.c TOP: 11-6 Problem 1 Finding Variance and Standard Deviation
 KEY: standard deviation | variance DOK: DOK 2
52. ANS: B PTS: 1 DIF: L2 REF: 11-6 Standard Deviation
 OBJ: 11-6.1 To find the standard deviation and variance of a set of values
 NAT: D.1.c TOP: 11-6 Problem 2 Using a Calculator to Find Standard Deviation
 KEY: mean | standard deviation DOK: DOK 1
53. ANS: D PTS: 1 DIF: L3 REF: 11-6 Standard Deviation
 OBJ: 11-6.1 To find the standard deviation and variance of a set of values
 NAT: D.1.c TOP: 11-6 Problem 2 Using a Calculator to Find Standard Deviation
 KEY: mean | standard deviation DOK: DOK 1
54. ANS: A PTS: 1 DIF: L4 REF: 11-6 Standard Deviation
 OBJ: 11-6.1 To find the standard deviation and variance of a set of values
 NAT: D.1.c TOP: 11-6 Problem 2 Using a Calculator to Find Standard Deviation
 KEY: mean | standard deviation DOK: DOK 1

55. ANS: D PTS: 1 DIF: L3 REF: 11-6 Standard Deviation
 OBJ: 11-6.2 To apply standard deviation and variance NAT: D.1.c
 TOP: 11-6 Problem 3 Using Standard Deviation to Predict KEY: standard deviation | mean
 DOK: DOK 2
56. ANS: A PTS: 1 DIF: L3 REF: 11-6 Standard Deviation
 OBJ: 11-6.2 To apply standard deviation and variance NAT: D.1.c
 TOP: 11-6 Problem 3 Using Standard Deviation to Predict KEY: standard deviation | mean
 DOK: DOK 2
57. ANS: B PTS: 1 DIF: L2 REF: 11-6 Standard Deviation
 OBJ: 11-6.2 To apply standard deviation and variance NAT: D.1.c
 TOP: 11-6 Problem 3 Using Standard Deviation to Predict KEY: standard deviation | mean
 DOK: DOK 2
58. ANS: A PTS: 1 DIF: L4 REF: 11-8 Binomial Distributions
 OBJ: 11-8.1 To find binomial probabilities and to use binomial distributions
 NAT: D.1.c TOP: 11-8 Problem 1 Using a Formula to Find Probabilities
 KEY: binomial probability | binomial experiment DOK: DOK 2
59. ANS: A PTS: 1 DIF: L4 REF: 11-8 Binomial Distributions
 OBJ: 11-8.1 To find binomial probabilities and to use binomial distributions
 NAT: D.1.c TOP: 11-8 Problem 1 Using a Formula to Find Probabilities
 KEY: binomial probability | binomial experiment DOK: DOK 2
60. ANS: B PTS: 1 DIF: L2 REF: 11-8 Binomial Distributions
 OBJ: 11-8.1 To find binomial probabilities and to use binomial distributions
 NAT: D.1.c TOP: 11-8 Problem 1 Using a Formula to Find Probabilities
 KEY: binomial experiment | binomial probability DOK: DOK 2
 NOT: DOK 2
61. ANS: C PTS: 1 DIF: L3 REF: 11-8 Binomial Distributions
 OBJ: 11-8.1 To find binomial probabilities and to use binomial distributions
 NAT: D.1.c TOP: 11-8 Problem 2 Expanding Binomials
 KEY: Binomial Theorem DOK: DOK 2
62. ANS: D PTS: 1 DIF: L3 REF: 11-8 Binomial Distributions
 OBJ: 11-8.1 To find binomial probabilities and to use binomial distributions
 NAT: D.1.c TOP: 11-8 Problem 2 Expanding Binomials
 KEY: Binomial Theorem DOK: DOK 2
63. ANS: A PTS: 1 DIF: L2 REF: 11-8 Binomial Distributions
 OBJ: 11-8.1 To find binomial probabilities and to use binomial distributions
 NAT: D.1.c TOP: 11-8 Problem 2 Expanding Binomials
 KEY: Binomial Theorem DOK: DOK 2
64. ANS: A PTS: 1 DIF: L3 REF: 11-9 Normal Distributions
 OBJ: 11-9.1 To use a normal distribution NAT: D.1.b|D.1.c|D.2.g
 TOP: 11-9 Problem 1 Using the Normal Distribution to Estimate Weight
 KEY: normal distribution DOK: DOK 2
65. ANS: C PTS: 1 DIF: L2 REF: 11-9 Normal Distributions
 OBJ: 11-9.1 To use a normal distribution NAT: D.1.b|D.1.c|D.2.g
 TOP: 11-9 Problem 1 Using the Normal Distribution to Estimate Weight
 KEY: normal distribution DOK: DOK 2

66. ANS: D PTS: 1 DIF: L4 REF: 11-9 Normal Distributions
 OBJ: 11-9.1 To use a normal distribution NAT: D.1.b|D.1.c|D.2.g
 TOP: 11-9 Problem 1 Using the Normal Distribution to Estimate Weight
 KEY: normal distribution DOK: DOK 3
67. ANS: B PTS: 1 DIF: L2 REF: 11-9 Normal Distributions
 OBJ: 11-9.1 To use a normal distribution NAT: D.1.b|D.1.c|D.2.g
 TOP: 11-9 Problem 3 Analyzing a Normal Distribution KEY: normal distribution
 DOK: DOK 2
68. ANS: C PTS: 1 DIF: L3 REF: 11-9 Normal Distributions
 OBJ: 11-9.1 To use a normal distribution NAT: D.1.b|D.1.c|D.2.g
 TOP: 11-9 Problem 3 Analyzing a Normal Distribution KEY: normal distribution
 DOK: DOK 3
69. ANS: C PTS: 1 DIF: L3 REF: 11-9 Normal Distributions
 OBJ: 11-9.1 To use a normal distribution NAT: D.1.b|D.1.c|D.2.g
 TOP: 11-9 Problem 3 Analyzing a Normal Distribution KEY: normal distribution
 DOK: DOK 3
70. ANS: A PTS: 1 DIF: L4 REF: 11-9 Normal Distributions
 OBJ: 11-9.1 To use a normal distribution NAT: D.1.b|D.1.c|D.2.g
 TOP: 11-9 Problem 3 Analyzing a Normal Distribution KEY: normal distribution
 DOK: DOK 3
71. ANS: A PTS: 1 DIF: L3 REF: 11-2 Probability
 OBJ: 11-2.1 To find the probability of an event using theoretical, experimental, and simulation methods
 NAT: D.4.c|D.4.d|D.4.j TOP: 11-2 Problem 2 Using a Simulation
 KEY: experimental probability | simulation DOK: DOK 2