**QCA 4 REVIEW**

**Multiple Choice**

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

\_\_\_\_ 1. What is the area of the triangle below?



|  |  |
| --- | --- |
| a. |  |
| b. |  |
| c. |  |
| d. | Now, find the volume of a triangular prism with the above base and a height of 7.5 cm.  |

\_\_\_\_ 2. What is the area of this shape?



|  |  |
| --- | --- |
| a. |  |
| b. |  |
| c. |  |
| d. |  |

 3. A brick has a length of , a width of , and a height of . How many  cubes can fit along the length of the brick?

|  |  |
| --- | --- |
| a. | 4 |
| b. | 5 |
| c. | 12 |
| d. | 240 |

\_\_\_\_ 4. The table shows the distance traveled by an accelerating car. Which graph would be most appropriate to show the data? Draw the most appropriate graph.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Distance (ft)** | 0 | 100 | 300 | 600 | 1000 |
| **Time (s)** | 0 | 1 | 2 | 3 | 4 |

|  |  |  |  |
| --- | --- | --- | --- |
| a. | A line graph would be most appropriate. | c. | A bar graph would be most appropriate. |
| b. | A line plot would be most appropriate. | d. | A stem-and-leaf plot would be most appropriate. |

\_\_\_\_ 5. Mike was in charge of collecting contributions for the Food Bank. He received contributions of $80, $70, $60, $40, and $80..

Find the mean, median, and mode of the contributions.

|  |  |
| --- | --- |
| a. | mean: $70median: $66mode: $80 |
| b. | mean: $66median: $70mode: $80 |
| c. | mean: $80median: $66mode: $70 |
| d. | mean: $80median: $70mode: $66 |

\_\_\_\_ 6. Find the interquartile range of the data displayed in the box plot shown.



|  |  |
| --- | --- |
| a. | 9 |
| b. | 7 |
| c. | 6 |
| d. | 3 |

\_\_\_\_ 7. The dot plot shown displays the heights, in inches, of the students in one class. Which measure of variability best describes how spread out the heights of the students are?



|  |  |
| --- | --- |
| a. | Mean |
| b. | Median |
| c. | Mean absolute deviation |
| d. | Interquartile range |

\_\_\_\_ 8. Which frequency table organizes the data?

1.3, 0.1, 1.1, 34.6, 5.9, 8.3, 12.5,

1.0, 0.7, 0.8, 28.2, 16.7, 0.2, 5.2

|  |  |
| --- | --- |
| a. |  |
| b. |  |
| c. |  |
| d. |  |

\_\_\_\_ 9. The table shows the number of stories in eight buildings. Which statement about the data is true?

|  |
| --- |
| **Number of Stories** |
| 15 15 18 20 22 24 26 60 |

|  |  |
| --- | --- |
| a. | The mode is greater than the mean. |
| b. | There are no outliers. |
| c. | The mode best describes the data. |
| d. | The mean is greater than the median. |

\_\_\_\_ 10. You randomly select a letter from the letters A, B, C, D, E and flip a coin. The table represents the sample space, where H represents the coin landing heads up and T represents landing tails up. What is the probability of selecting the letter “C” or the coin landing tails up?

|  |  |  |
| --- | --- | --- |
|  | **H** | **T** |
| **A** |  |  |
| **B** |  |  |
| **C** |  |  |
| **D** |  |  |
| **E** |  |  |

|  |  |
| --- | --- |
| a. |  |
| b. |  |
| c. |  |
| d. |  |

\_\_\_\_ 11. A spinner is divided into 4 sections using the colors red, orange, green, and blue. After 50 trials, the spinner landed on red 10 times, on orange 16 times, on green 6 times, and on blue 18 times. What would you estimate as the probability of the spinner not landing on green?

|  |  |
| --- | --- |
| a. |  |
| b. |  |
| c. |  |
| d. |  |

\_\_\_\_ 12. Find the circumference of a circle that has a radius of 7 cm. Use 3.14 for .

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 21.98 cm | c. | 114.74 cm |
| b. | 43.96 cm | d. | 153.86 cm |

\_\_\_\_ 13. To the nearest tenth, find the area of a circle with diameter of 6 m. Use 3.14 for .

|  |  |  |  |
| --- | --- | --- | --- |
| a. |  | c. |  |
| b. |  | d. |  |

\_\_\_\_ 14. The net of a square pyramid is shown. Find the surface area of the pyramid.



|  |  |
| --- | --- |
| a. |  |
| b. |  |
| c. |  |
| d. |  |

\_\_\_\_ 15. What is a benefit of making a purchase with a debit card?

|  |  |
| --- | --- |
| a. | The payment will not be withdrawn from your account immediately. |
| b. | You are able to make purchases without having money to cover the full price. |
| c. | Banks never charge fees for debit card purchases. |
| d. | There are no interest payments on unpaid balances. |

\_\_\_\_ 16. Tell whether the angle measures are those of a triangle. If so, classify the triangle as *acute*, *right*, or *obtuse*.

60°, 30°, 80°

|  |  |  |  |
| --- | --- | --- | --- |
| a. | is a triangle, acute | c. | not a triangle |
| b. | is a triangle, obtuse | d. | is a triangle, right |

\_\_\_\_ 17. Find the missing angle measure. (The figure may not be drawn to scale.)



|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| a. | *n* = 112° | b. | *n* = 34° | c. | *n* = 68° | d. | *n* = 56° |

\_\_\_\_ 18. Find the value of *x*.



|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| a. | 100 | b. | 70 | c. | 80 | d. | 110 |

\_\_\_\_ 19. Find the value of *x*.



|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| a. | 220 | b. | 85 | c. | 40 | d. | 130 |

\_\_\_\_ 20. What is the area of this shape?



|  |  |
| --- | --- |
| a. |  |
| b. |  |
| c. |  |
| d. |  |

\_\_\_\_ 21. A bathtub is the shape of a rectangular prism. The dimensions are . What is the volume of the bathtub?

|  |  |
| --- | --- |
| a. |  |
| b. |  |
| c. |  |
| d. |  |

\_\_\_\_ 22. What is the area of the following rhombus?



|  |  |
| --- | --- |
| a. |  |
| b. |  |
| c. |  |
| d. |  |

\_\_\_\_ 23. Which data set does the line plot represent?



|  |  |  |  |
| --- | --- | --- | --- |
| a. | 0, 2, 2, 3, 3, 4, 6, 9, 9, 9, 10, 10 | c. | 0, 2, 3, 3, 3, 4, 6, 9, 9, 10, 10, 10 |
| b. | 0, 2, 3, 3, 3, 3, 4, 9, 9, 10, 10, 10 | d. | 0, 2, 3, 3, 4, 4, 5, 6, 9, 9, 10, 10 |

\_\_\_\_ 24. Which data set could the histogram represent?



|  |  |  |  |
| --- | --- | --- | --- |
| a. | 6, 18, 25, 34, 43, 51, 78 | c. | 11, 21, 42, 53, 71 |
| b. | 5, 10, 15, 20, 25, 40, 45, 60, 70 | d. | 18, 26, 46, 47, 53, 54, 59, 75 |

\_\_\_\_ 25. Kendra asked her friends how many pets they each had in their family. Her results are shown below.

4, 2, 1, 1, 0, 2, 7, 3, 1, 0, 0

Which is a histogram of the data?

|  |  |  |  |
| --- | --- | --- | --- |
| a. |  | c. |  |
| b. |  | d. |  |

\_\_\_\_ 26. The following data are the numbers of minutes it took students to finish an English quiz. Which stem-and-leaf plot represents the data?

27, 32, 41, 24, 28, 48, 40, 39, 49, 57, 35, 31, 42, 43, 44

|  |  |  |  |
| --- | --- | --- | --- |
| a. |  | c. |  |
| b. |  | d. |  |

\_\_\_\_ 27. Which is the correct box-and-whisker plot for the data set?

21, 15, 10, 16, 11, 19

|  |  |
| --- | --- |
| a. |  |
| b. |  |
| c. |  |
| d. |  |

\_\_\_\_ 28. Find a set of 5 items that has a range of 9, a mean of 15, a median of 14, and a mode of 11.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 11, 11, 13, 15, 20 | c. | 11, 11, 14, 19, 20 |
| b. | 5, 11, 14, 14, 31 | d. | 6, 10, 14, 15, 15 |

\_\_\_\_ 29. In a box-and-whisker plot, the *interquartile range* is a measure of the spread of the middle half of the data. Find the interquartile range for the data set: 10, 3, 8, 6, 9, 12, 13.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 12 | c. | 6 |
| b. | 8 | d. | 7 |

\_\_\_\_ 30. Which question is a statistical question that may show variability?

|  |  |
| --- | --- |
| a. | How many students are in your math class? |
| b. | How tall are the students in your math class? |
| c. | How tall is Tranh? |
| d. | Is Tranh taller than Silvia? |

\_\_\_\_ 31. Which question is NOT a statistical question that may show variability?

|  |  |
| --- | --- |
| a. | How old are the members of the football team? |
| b. | Who are the captains of the football team? |
| c. | How tall are middle school football players? |
| d. | What is the average weight of the players on the football team? |

\_\_\_\_ 32. A bag holds 2 red and 7 blue marbles. What is the probability of the complement of randomly selecting a red marble?

|  |  |
| --- | --- |
| a. |  |
| b. |  |
| c. |  |
| d. |  |

\_\_\_\_ 33. A number cube is rolled once and then rolled again. What is the probability of rolling a 3 followed by rolling a 6?

|  |  |
| --- | --- |
| a. |  |
| b. |  |
| c. |  |
| d. |  |

\_\_\_\_ 34. A circle has a diameter of 40 in. Find the circumference of the circle to the nearest tenth. Use 3.14 for .

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 31.4 in. | c. | 283.4 in. |
| b. | 62.8 in. | d. | 1133.5 in. |

\_\_\_\_ 35. What net can be folded to form the figure below?



|  |  |  |  |
| --- | --- | --- | --- |
| a. |  | c. |  |
| b. |  | d. |  |

**QCA 4 REVIEW**

**Answer Section**

**MULTIPLE CHOICE**

 1A. ANS: B

The area  of a triangle is given by the formula , where  is the length of the base and  is the height. In the given triangle,  and . So, the area is .



|  |  |
| --- | --- |
|  | **Feedback** |
| **A** | The area of a triangle is not . |
| **B** | That’s correct! |
| **C** | The area of a triangle is not . |
| **D** | You did not include a factor of  when finding the area. |

PTS: 1 NAT: NT.CCSS.MTH.10.6.6.G.1 STA: TEKS.6.8.C

KEY: area | triangle DOK: DOK 1

1B. ANS: 164.0625 cm cubed.

 2. ANS: C

The area *A* of a trapezoid is given by the formula , where  is the height,  is the length of the top base, and  is the length of the bottom base. For the given shape, , , and  So, the area of the shape is .



|  |  |
| --- | --- |
|  | **Feedback** |
| **A** | The area of a trapezoid is the product of one-half the height and the sum of the bases, not just the bottom base. |
| **B** | The area of a trapezoid is the product of one-half the height and the sum of the bases, not just the top base. |
| **C** | That’s correct! |
| **D** | You did not include a factor of  when finding the area. |

PTS: 1 NAT: NT.CCSS.MTH.10.6.6.G.1 STA: TEKS.6.8.D

KEY: area | trapezoid DOK: DOK 1

 3. ANS: C

The length of the brick is . So,  cubes can fit along the length of the brick.

|  |  |
| --- | --- |
|  | **Feedback** |
| **A** | This is the number of cubes that can fit along the width.  |
| **B** | This is the number of cubes that can fit along the height.  |
| **C** | That’s correct! |
| **D** | This is the total number of cubes that can fit in the brick.  |

PTS: 1 NAT: NT.CCSS.MTH.10.6.6.G.2 STA: TEKS.6.8.D

KEY: right rectangular prism DOK: DOK 1

 4. ANS: A

The information in the table describes a change over time. A line graph would be the most appropriate. Label the horizontal axis with units of time and the vertical axis with units of distance.

|  |  |
| --- | --- |
|  | **Feedback** |
| **A** | Correct! |
| **B** | Use a graph where you can show how data changes over a period of time. |
| **C** | Use a graph where you can show how data changes over a period of time. |
| **D** | Use a graph where you can show how data changes over a period of time. |

PTS: 1 DIF: Average OBJ: Choosing an Appropriate Data Display

STA: TEKS.6.12.A TOP: Choosing an Appropriate Display

 5. ANS: B PTS: 1 DIF: Average REF: AGPA1405

STA: TEKS.6.12.C TOP: Mean Median Mode and Range

KEY: solve | word | mean | median | range | central tendency | mode

DOK: DOK 3 NOT: 978-0-618-73961-5

 6. ANS: C

The interquartile range is the difference between the upper and lower quartiles. The upper quartile is 9 and the lower quartile is 3. So, the interquartile range is .

|  |  |
| --- | --- |
|  | **Feedback** |
| **A** | This is the upper quartile. |
| **B** | This is the median of the data set. |
| **C** | That’s correct! |
| **D** | This is the lower quartile. |

PTS: 1 NAT: NT.CCSS.MTH.10.6.6.SP.2 STA: TEKS.6.12.C

KEY: interquartile range | measure of spread | analyzing box plots

DOK: DOK 1

 7. ANS: C

The overall shape of the distribution of the data set is roughly symmetric. So, the mean absolute deviation best describes the variability of the heights.

|  |  |
| --- | --- |
|  | **Feedback** |
| **A** | The mean is a measure of center, not variability. |
| **B** | The median is a measure of center, not variability. |
| **C** | That’s correct! |
| **D** | Think about what the overall shape of the distribution is and how it affects the values of the measures of variability. |

PTS: 1 NAT: NT.CCSS.MTH.10.6.6.SP.5.d STA: TEKS.6.12.C

KEY: mean absolute deviation | measure of variability | summary of data

DOK: DOK 1

 8. ANS: A PTS: 1 NAT: NT.CCSS.MTH.10.6.6.SP.5.a

STA: TEKS.6.12.D DOK: DOK 2

 9. ANS: D PTS: 1 NAT: NT.CCSS.MTH.10.6.6.SP.5.d

STA: TEKS.6.12.D KEY: shape of distribution

DOK: DOK 1

 10. ANS: D

The outcomes that result in selecting the letter “C” or the coin landing tails up are , , , , , and . Since there are 6 favorable outcomes and there are 10 possible outcomes in the sample space, the probability is found by dividing 6 by 10.



|  |  |
| --- | --- |
|  | **Feedback** |
| **A** | This is the probability of selecting the letter “C” and the coin landing tails up. |
| **B** | This is the probability of selecting the letter “C”. |
| **C** | This is the probability of the coin landing tails up. |
| **D** | That’s correct! |

PTS: 1

NAT: NT.CCSS.MTH.10.7.7.SP.8.a | NT.CCSS.MTH.10.7.7.SP.8.b | NT.CCSS.MTH.10.K-12.MP.5

STA: TEKS.7.6.I KEY: compound events | identifying outcomes | probability | sample space

DOK: DOK 1

 11. ANS: D

The probability of the spinner not landing on green is equal to the probability of the spinner landing on red, orange, or blue.



|  |  |
| --- | --- |
|  | **Feedback** |
| **A** | This is the probability of the spinner landing on green. |
| **B** | This is the probability of the spinner landing on red. |
| **C** | This is the probability of the spinner not landing on orange. |
| **D** | That’s correct! |

PTS: 1 NAT: NT.CCSS.MTH.10.7.7.SP.6 STA: TEKS.7.6.I

KEY: experimental probability DOK: DOK 2

 12. ANS: B PTS: 1 NAT: NT.CCSS.MTH.10.7.7.G.4

STA: TEKS.7.9.B DOK: DOK 1

 13. ANS: C PTS: 1 NAT: NT.CCSS.MTH.10.7.7.G.4

STA: TEKS.7.9.B DOK: DOK 1

 14. ANS: C

The area  of a triangle is . The base  of each triangle is  and the height  of each triangle is . So, the area of each triangle is . So, the combined area of all four triangles is .



The base of the pyramid is a square with a side length of . The area  of a square is , so the area of the square is .

The total surface area of the pyramid is the area of the base plus the combined areas of all four triangular faces. So, the total surface area is .



|  |  |
| --- | --- |
|  | **Feedback** |
| **A** | This is the sum of the area of the square base plus the area of only one triangular face. |
| **B** | This is the combined area of the four triangular sides.  |
| **C** | That’s correct! |
| **D** | Don’t forget the factor of  in the formula for the area of a triangle. |

PTS: 1 NAT: NT.CCSS.MTH.10.6.6.G.4 STA: TEKS.7.9.D

KEY: square pyramid | surface area DOK: DOK 2

 15. ANS: D PTS: 1 STA: TEKS.6.14.B

DOK: DOK 2

 16. ANS: C PTS: 1 DIF: Average REF: MLC10500

STA: TEKS.6.8.A TOP: Classifying Triangles KEY: angle | triangle | classify | measure

DOK: DOK 2 NOT: 978-0-618-73957-8

 17. ANS: B PTS: 1 DIF: Average REF: MCT60477

STA: TEKS.6.8.A TOP: Classifying Triangles KEY: measure | angle | triangle | sum

DOK: DOK 2 NOT: 978-0-618-73957-8

 18. ANS: D PTS: 1 DIF: Average REF: MGR60047

STA: TEKS.6.8.A TOP: Classifying Quadrilaterals KEY: angle | quadrilateral

DOK: DOK 2 NOT: 978-0-618-73957-8

 19. ANS: D PTS: 1 DIF: Average REF: MGR60048

STA: TEKS.6.8.A TOP: Classifying Quadrilaterals KEY: quadrilateral | angle

DOK: DOK 2 NOT: 978-0-618-73957-8

 20. ANS: C

The area *A* of a trapezoid is given by the formula , where  is the height,  is the length of the top base, and  is the length of the bottom base. For the given shape, , , and  So, the area of the shape is .



|  |  |
| --- | --- |
|  | **Feedback** |
| **A** | The area of a trapezoid is the product of one-half the height and the sum of the bases, not just the bottom base. |
| **B** | The area of a trapezoid is the product of one-half the height and the sum of the bases, not just the top base. |
| **C** | That’s correct! |
| **D** | You did not include a factor of  when finding the area. |

PTS: 1 NAT: NT.CCSS.MTH.10.6.6.G.1 STA: TEKS.6.8.C

KEY: area | trapezoid DOK: DOK 1

 21. ANS: D



|  |  |
| --- | --- |
|  | **Feedback** |
| **A** | Do not add the dimensions of the bathtub. Remember that . |
| **B** | You found the product of the length and width of the prism. Remember that . |
| **C** | You found the product of the length and height of the prism. Remember that . |
| **D** | That’s correct! |

PTS: 1 NAT: NT.CCSS.MTH.10.6.6.G.2 STA: TEKS.6.8.C

KEY: volume | right rectangular prism DOK: DOK 1

 22. ANS: B

The area *A* of a rhombus is given by the formula , where  is the length of one diagonal and  is the length of the other diagonal. For the given rhombus,  = 14 cm and  = 24 cm. So, the area of the rhombus is 168 cm2.



|  |  |
| --- | --- |
|  | **Feedback** |
| **A** | The area of a rhombus is one-half the product of the lengths of the diagonals. |
| **B** | That’s correct! |
| **C** | You did not include a factor of  when finding the area. |
| **D** | You included a factor of 2, not , when finding the area. |

PTS: 1 NAT: NT.CCSS.MTH.10.6.6.G.1 STA: TEKS.6.8.D

KEY: area | rhombus DOK: DOK 1

 23. ANS: C PTS: 1 NAT: NT.CCSS.MTH.10.6.6.SP.4

STA: TEKS.6.12.A DOK: DOK 1

 24. ANS: D PTS: 1 NAT: NT.CCSS.MTH.10.6.6.SP.4

STA: TEKS.6.12.A DOK: DOK 3

 25. ANS: D PTS: 1 NAT: NT.CCSS.MTH.10.6.6.SP.4

STA: TEKS.6.12.A DOK: DOK 3

 26. ANS: A PTS: 1 DIF: Basic REF: MCT60498

STA: TEKS.6.12.A TOP: Stem-and-Leaf Plots

KEY: stem-and-leaf | data | statistics DOK: DOK 1 NOT: 978-0-618-73957-8

 27. ANS: B PTS: 1 NAT: NT.CCSS.MTH.10.6.6.SP.4

STA: TEKS.6.12.A KEY: box-and-whisker plot

DOK: DOK 2

 28. ANS: C PTS: 1 REF: 905a45ef-9631-11dd-8a40-001185f11039

NAT: NT.CCSS.MTH.10.6.6.SP.5.c STA: TEKS.6.12.C

TOP: Mean, Median, Mode, and Range KEY: mean | median | mode | range

DOK: DOK 3

 29. ANS: C PTS: 1 NAT: NT.CCSS.MTH.10.6.6.SP.2

STA: TEKS.6.12.C KEY: statistical distribution

DOK: DOK 1

 30. ANS: B PTS: 1 NAT: NT.CCSS.MTH.10.6.6.SP.1

STA: TEKS.6.13.B KEY: statistical questions

DOK: DOK 1

 31. ANS: B PTS: 1 NAT: NT.CCSS.MTH.10.6.6.SP.1

STA: TEKS.6.13.B KEY: statistical questions

DOK: DOK 1

 32. ANS: D PTS: 1 REF: M1.13.EN.ST.02

NAT: NT.CCSS.MTH.10.7.7.SP.7.a STA: TEKS.7.6.E KEY: probability | complement

DOK: DOK 2

 33. ANS: A

There is one outcome rolling a 3 followed by rolling a 6 and there are 36 possible outcomes in the sample space. So, the probability of rolling a 3 followed by rolling a 6 is .

|  |  |
| --- | --- |
|  | **Feedback** |
| **A** | That’s correct! |
| **B** | You found the probability of rolling a 3 and a 6 in any order. |
| **C** | The probability of rolling a 3 followed by rolling a 6 is not equal to the probability of rolling a certain number on a single roll. |
| **D** | The probability of rolling a 3 followed by rolling a 6 is not equal to the probability of rolling a 3 or 6 on a single roll. |

PTS: 1 NAT: NT.CCSS.MTH.10.7.7.SP.8.a STA: TEKS.7.6.I

KEY: compound events | probability DOK: DOK 1

 34. ANS: D PTS: 1 NAT: NT.CCSS.MTH.10.7.7.G.4

STA: TEKS.7.9.B DOK: DOK 1

 35. ANS: B

The figure is a rectangular prism, which has 6 faces. The top and bottom faces are squares with side length 3 cm and the four side faces are rectangles with side lengths 3 cm and 6 cm. Both B and D fit this description, but in D, the two squares would overlap if the net were folded.

|  |  |
| --- | --- |
|  | **Feedback** |
| **A** | This net is made up of four squares and two rectangles, which cannot be folded to form a rectangular prism. |
| **B** | That’s correct! |
| **C** | This net only has 5 faces. |
| **D** | When folded, the two squares in this net overlap and one end of the figure formed is open. |

PTS: 1 NAT: NT.CCSS.MTH.10.6.6.G.4 STA: TEKS.7.9.D

KEY: rectangular prism | net of three-dimensional figure DOK: DOK 1