Grade 7
Summer Advanced Math Packet

This assignment is to be handed in no later than Friday, September 5, 2014. Late work **will not be accepted.** This assignment will be graded and included in the first marking period grades.

All students re-registering, regardless of the date of registration, will be responsible for turning in this Summer Math Packet on time.

Name: _____

7th Grade Advanced Math

Students entering 7th grade advanced math should be proficient in:

- Adding, subtracting, multiplying, and dividing fractions and mixed numbers
- Adding, subtracting, multiplying, and dividing decimals
- Finding prime factorization
- Finding multiples
- Finding greatest common factor and least common multiple
- Graphing ordered pairs
- Converting between fractions, percents, and decimals
- Writing and graphing inequalities
- Finding area and perimeter
- Finding mean, median, and mode

Name _____

1. **CC.6.NS.1** Which equation is true?

   A $\frac{3}{5} \div \frac{2}{3} = \frac{2}{5}$

   B $\frac{5}{8} \div \frac{7}{10} = \frac{25}{28}$

   C $\frac{4}{5} \div \frac{3}{8} = \frac{15}{32}$

   D $\frac{5}{6} \div \frac{3}{4} = 1\frac{3}{5}$

2. **CC.6.EE.3** Which of the following is equivalent to $b + b + b + c + c$?

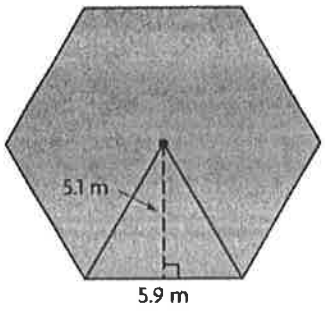
   A $3b + 2c$

   B $3b - 2c$

   C $\frac{3b}{2c}$

   D $5bc$

3. **CC.6.G.1** What is the area of the regular polygon below?



   A 52.08 m^2

   B 73.5 m^2

   C 86.24 m^2

   D 90.27 m^2

4. **CC.6.NS.3** Jenny spent $5.85 to buy pencils that cost $0.45 each. How many pencils did Jenny buy?

   _____

5. **CC.6.SP.1** Which of the following is **not** a statistical question?

   A How tall are the players on the basketball team?

   B How many concerts have my classmates attended?

   C What is the number of hours that my friends spend on the computer?

   D How many dogs does my family own?

6. **CC.6.RP.1** What is the ratio of stars to hearts below?

   A 4:3

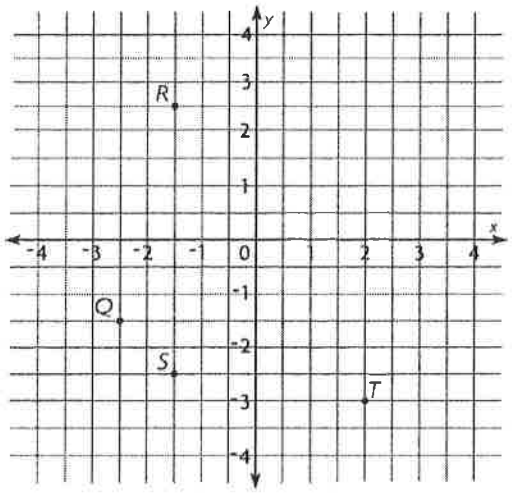
   B 4:1

   C 3:1

   D 3:4

Name _____

7. **CC.6.NS.6c** What point is located at (⁻1.5, ⁻2.5) on the coordinate plane below?



_____

8. **CC.6.EE.5** Which of the following is the solution of the equation $x - 3.85 = 5.3$?

A $x = 1.45$

B $x = 1.55$

C $x = 8.88$

D $x = 9.15$

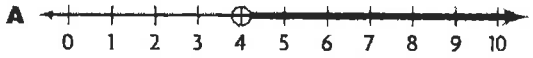
9. **CC.6.SP.5c** What is the mean absolute deviation of the data below?

57, 46, 52, 39, 41

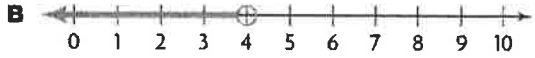
_____

10. **CC.6.EE.8** Which shows the solution set for $x > 4$?

A

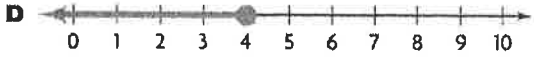


B



C

D



11. **CC.6.NS.5** Which of the following situations could be represented by ⁻2.5?

A 2.5 inches of rainfall

B a growth of 2.5 inches

C 2.5 point decrease in the stock market

D a temperature of 2.5°C above 0

12. **CC.6.RP.3b** A container of 6 tennis balls costs $2.82. At that rate, how much would a container of 15 tennis balls cost?

_____

13. **CC.6.EE.2b** Which of the following is a coefficient in the expression $6x + 4 \div 2$?

A 6

B 4

C 2

D x

Name _____

14. **CC.6.SP.3** There are 10 numerical values in a set of data based on observations of car speeds. Which of the following would best describe the median?

A the fifth observation made

B the fifth value when the data set is ordered

C the mean of the fifth and sixth observations made

D the mean of the fifth and sixth values when the data set is ordered

15. **CC.6.NS.7c** The temperature changed from 0°C to $^-22$°C. Which of the following represents the number of degrees that the temperature decreased?

A $|^-22|$

B $^-|22|$

C $^-22$

D 0

16. **CC.6.EE.2a** Which expression is the same as "3 less than a number"?

A $n - 3$

B $n \div 3$

C $3 \div n$

D $3 - n$

17. **CC.6.EE.4** Which of the following expressions is always equivalent to $^-2b + 4 + 4b - 7$?

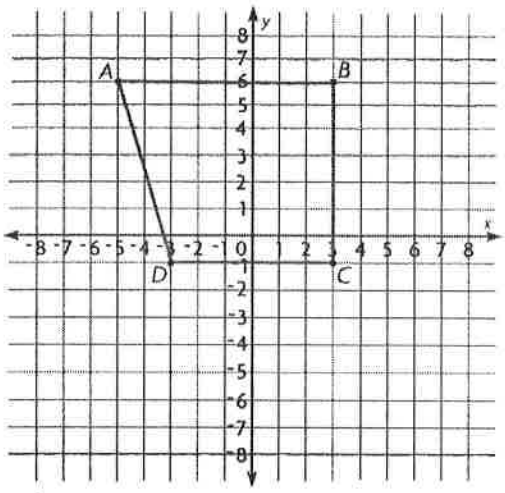
A $b + b$

B $b \div 2$

C $2b - 3$

D $2b + 4$

18. **CC.6.G.3** Trapezoid *ABCD* is shown on the coordinate plane below.



How much longer is side *AB* than side *CD*?

_____

19. **CC.6.RP.3d** One pint is equal to 16 fluid ounces. How many pints are equal to 272 fluid ounces?

A 15 pints

B 16 pints

C 17 pints

D 18 pints

20. **CC.6.NS.6a** Which of the following numbers is its own opposite?

A 0

B 0.1

C $\frac{1}{2}$

D 1

Name _____

21. **CC.6.SP.5a** The chart below shows quiz scores of students in Mr. Masse's fourth-period class.

Quiz Scores				
86	82	100	96	92
90	84	98	90	94
96	96	88	100	90
90	76	72	94	88

How many students took the quiz?

_____

22. **CC.6.NS.2** What is the quotient of 17,205 ÷ 73?

A 249 r28

B 237 r4

C 235 r50

D 221 r72

23. **CC.6.NS.7a** What does the inequality below tell you about the position of the two numbers on a number line?

$$^{-}8 < {}^{-}6$$

A $^{-}8$ is to the right of $^{-}6$ on a number line because it is the greater number.

B $^{-}8$ is to the right of $^{-}6$ on a number line because it is the lesser number.

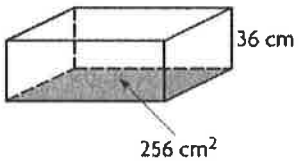
C $^{-}8$ is to the left of $^{-}6$ on a number line because it is the greater number.

D $^{-}8$ is to the left of $^{-}6$ on a number line because it is the lesser number.

24. **CC.6.EE.2c** The cost of a gym membership can be found by using the expression $65m + 75$, where m is the number of months. What is the cost for 9 months?

_____

25. **CC.6.G.2** What is the volume of the rectangular prism below?



A 6,948 cm^3

B 7,418 cm^3

C 8,324 cm^3

D 9,216 cm^3

26 **CC.6.RP.2** A recipe for trail mix has a ratio of 6 cups of raisins to 4 cups of almonds. How many cups of almonds are there for each cup of raisins?

A $\frac{1}{4}$ cup

B $\frac{1}{2}$ cup

C $\frac{2}{3}$ cup

D $1\frac{1}{4}$ cups

27. **CC.6.EE.6** Which best explains what x in $x \leq 4$ represents?

A all numbers on a number line to the left of 4, including 4

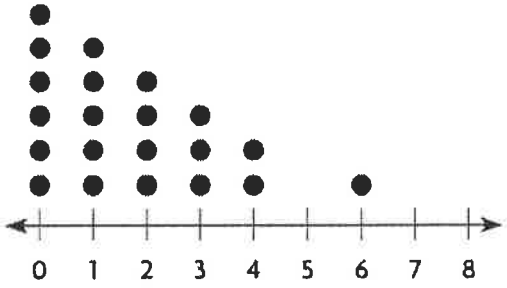
B all numbers on a number line to the left of 4

C all numbers on a number line to the right of 4, including 4

D all numbers on a number line to the right of 4

Name _____

28. **CC.6.SP.2** The dot plot below shows the number of days that each student in Kendra's class was absent over one school year.



Number of Days Absent

Which of the following best describes the shape of the graph?

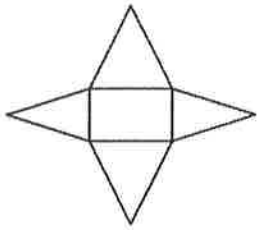
A There are no gaps or clusters.

B There is 1 gap, but there are no clusters.

C The data cluster is at 6.

D The data cluster is at 0.

29. **CC.6.G.4** Which three-dimensional figure can be constructed from the net below?



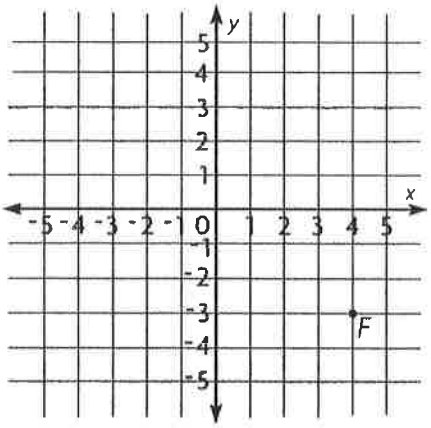
A triangular prism

B triangular pyramid

C rectangular prism

D rectangular pyramid

30. **CC.6.NS.8** Point *E* is 5 units to the left of and 3 units above Point *F*.



What are the coordinates of Point *E*?

_____

31. **CC.6.RP.3c** There are 8 lead parts in the sixth-grade play. Of those lead parts, 5 are for girls. What percent of the lead parts are for boys?

A 35%

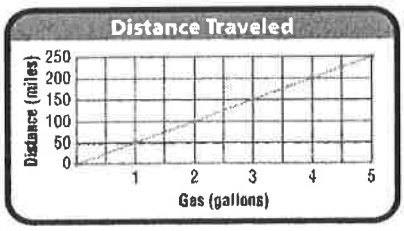
B 37.5%

C 62.5%

D 65%

Name _____

32. **CC.6.EE.9** The graph shows the number of gallons, g, a car used travelling different distances, d.



Which equation represents the relationship between distance and gallons of gas?

A $d = 0.02g$ **C** $d = 25g$

B $d = 0.04g$ **D** $d = 50g$

33. **CC.6.NS.6b** If point $(-3, 5)$ is reflected across the y-axis, what are the coordinates of its image?

_____

34. **CC.6.SP.5d** Michelle found the prices of homes that recently sold in her neighborhood.

$175,000; $300,000; $175,000;

$900,000; $250,000; $275,000

Which sentence is true?

A The mode best represents the data because it is the least value.

B The range best represents the data because it is greater than all but one home.

C The median best represents the data because the outlier skews the mean and the range.

D The mean best represents the data because it includes the cost of all of the homes.

35. **CC.6.NS.7d** For which situation would the inequality $n > -10$ apply?

A Greg owes less than $10.

B An elevator is on the tenth floor.

C A toll was more than $10.

D A diver is more than 10 feet below sea level.

36. **CC.6.EE.7** What is the value of x in the equation below?

$$\frac{2}{3} + x = 1\frac{1}{2}$$

_____

37. **CC.6.RP.3a** In a coed softball league, there are 5 female batters for every 6 male batters. Which of the following tables shows this ratio for different numbers of batters?

A

Female	6	7	8
Male	7	8	9

B

Female	7	9	11
Male	9	12	15

C

Female	11	16	22
Male	11	17	22

D

Female	10	15	20
Male	12	18	24

Name _____

38. **CC.6.SP.5b** The times, in seconds, of 10 runners in the 50-meter dash are shown below.

6.38, 6.71, 7.43, 6.19, 6.95,

7.42, 6.88, 7.26, 7.15, 8.02

Which of the following tools was most likely used to collect the data?

A clock

B stopwatch

C calendar

D odometer

39. **CC.6.NS.4** Which shows a way to rewrite 48 + 32 using the Distributive Property?

A 4(10 + 8)

B 6(8 + 5)

C 8(6 + 4)

D 16(4 + 2)

40. **CC.6.NS.7b** Drake is scuba diving at 12.7 meters below sea level. Hilary is at 12.14 meters below sea level, and Frances is at 11.95 meters below sea level. Using absolute value, list the divers in order, from the farthest below sea level to the closest to sea level.

_____

41. **CC.6.EE.1** What is the value of $9^3 - (5^2 + 3^4)$?

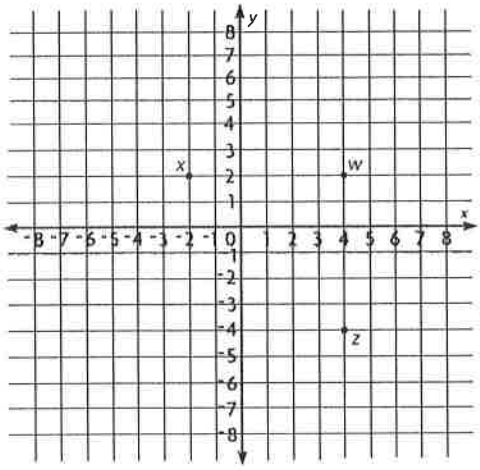
A 5

B 29

C 623

D 673

42. **CC.6.G.3** Three vertices of a square are plotted on the coordinate grid below.



What are the coordinates of the fourth vertex of the square?

A $(^-4, ^-4)$

B $(^-2, ^-2)$

C $(^-2, ^-4)$

D $(^-2, ^-2)$

43. **CC.6.RP.3b** Drew read 35 pages in 50 minutes. At that rate, how many pages can he read in 2 hours?

A 70

B 84

C 98

D 105

Name _____

Performance Assessment Task

44. **CC.6.SP.4** Travis practiced his guitar every day for a week. Each day he recorded the exact number of minutes he practiced. The numbers of minutes that Travis practiced his guitar each day last week are shown below.

Day	Number of Minutes Practiced
Monday	45
Tuesday	48
Wednesday	40
Thursday	30
Friday	50
Saturday	42
Sunday	55

Use the number line below to create a box plot that represents Travis' data.

Explain how you can use your box plot to quickly identify the median, the upper quartile, and the lower quartile of the data set.

_____

_____

_____

_____

Name _____

Chapters 1–3
Task D

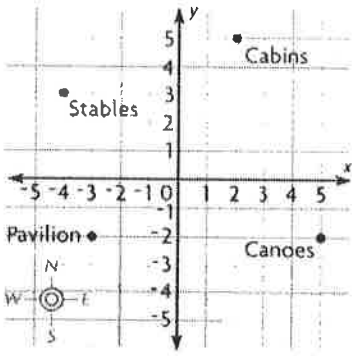
Camp Map

The map of Camp Getaway is shown on the coordinate plane. Each unit represents 1 kilometer. The dining hall is located at the origin.

A Find the distance between the pavilion and the canoes. Explain how you found your answer.

Show your work.

Camp Getaway



B The camp director wants to build a new campfire pit so that the pit is at least 2 kilometers away from the other structures, including the dining hall. Write an ordered pair where the director could build the campfire pit. Graph and label the ordered pair on the coordinate plane.

_____

C A stone path will be built along gridlines from the dining hall to the new campfire pit. Describe one way the director could build the path, and then give the length of the path.

_____

_____

_____

Name _____

Chapters 4–6
Task D

Paint Samples

The manager at the hardware store takes 2 gallons of paint from each order and makes paint samples for his customers to purchase.

A The manager has 6 containers to use for the paint samples. Using cups as the unit of measurement, show one possible way the manager can divide 2 gallons of paint among the 6 containers. Explain how you found your answer.

Show your work.

Customary Units of Capacity
8 fluid ounces (fl oz) = 1 cup (c)
2 cups = 1 pint (pt)
2 pints = 1 quart (qt)
4 cups = 1 quart
4 quarts = 1 gallon (gal)

B A customer who purchased one of the paint samples from Part A used 2 fluid ounces of paint to test the paint color. She needs at least $4\frac{1}{2}$ cups of paint to finish painting her cabinet. Does she have enough paint left over from the sample container? Justify your answer.

C Explain why you must use conversion factors to convert among customary units of measurement instead of moving the decimal point.

Name _____

Chapters 7–9
Task B

Selling Bushes

Libby sells azalea bushes at the farmer's market for $8 each. Nina sells rose bushes for $12 each. Libby and Nina equally share the cost of renting of a small retail booth for $50.

A Write an algebraic expression that either Libby or Nina can use to find the profit she will make for selling n azalea bushes or n rose bushes, after paying her equal share of the booth rental.

B Identify the parts of the expression you wrote in Part A.

C Explain what it means to substitute a value for a variable.

D Select a value for the variable in the algebraic expression you wrote in Part A. Then write and evaluate the numerical expression.

Name _____

Chapters 10–13
Task B

Cupcake Boxes

The owner of the Corner Bakery wants to place individual cupcakes into boxes shaped like rectangular prisms. Each box will be the same size. The dimensions of the cupcake boxes must be greater than 3 inches and less than 4 inches.

A Select dimensions for the cupcake box, and then draw a net to match. Label the dimensions of the faces of the cupcake box in your net.

Show your work.

B The owner wants to cover each cupcake box with decorative paper for special occasions. Explain how to use the net you drew in Part A to find the surface area of your cupcake box. Then find the surface area of your cupcake box.

C To sell the cupcakes online, the owner needs to place the volume of the cupcake box on the label. Find the volume of your cupcake box. Explain how you found your answer.