Summer 2020 Packet
Incoming 8th Grade
Mathematics

Summer break is a great time to rest and relax from a hardworking school year. However, it is important to work out our brains periodically throughout the summer. This packet is your summer math assignment. These questions were chosen based on the work you did as 7th graders. You will be graded on your ***effort, completeness and quality of work.*** We recommend you take your time and spread out the assignment throughout the summer.

As always, make sure to show all of your work (yes, even on multiple choice) and do your absolute best. If you have any questions, please do not hesitate to contact us.

PART ONE.

Multiple Choice

You will answer 15 multiple choice questions. Make sure to show your work and fill in the scan sheet attached.

Checklist:

- ☐ I showed all of my work neatly when possible.
- ☐ I filled out my scan sheet.
- ☐ I did my absolute best and am proud of the work I did.

PART TWO.

Tasks

You will answer four tasks. Make sure to show all of your work and answer in a complete sentence.

Checklist:

- ☐ I showed all of my work neatly and organized.
- ☐ I used proper units when necessary.
- ☐ I answered in a complete sentence.
- ☐ I did my absolute best and am proud of the work I did.

Summer Packet Incoming 8th Grade

Name: _____ **Date:** _____

1. Yesterday, the temperature at noon was 11.4°F. By midnight, the temperature had decreased by 15.7 degrees. What was the temperature at midnight?

   A. -4.3°F B. -11.4°F

   C. -15.7°F D. -27.1°F

2. What is the value of $(-\frac{1}{4} - \frac{1}{2}) \div (-\frac{4}{7})$?

   A. $-1\frac{5}{16}$ B. $-\frac{3}{7}$ C. $\frac{3}{7}$ D. $1\frac{5}{16}$

3. What is the value of the expression below?

$$\frac{3}{8} + (-\frac{4}{5}) + (-\frac{3}{8}) + \frac{5}{4}$$

   A. 0 B. $\frac{1}{20}$ C. $\frac{9}{20}$ D. $2\frac{4}{5}$

4. Which expression represents a factorization of $32m + 56mp$?

   A. $8(4m + 7p)$ B. $8(4 + 7)mp$

   C. $8p(4 + 7m)$ D. $8m(4 + 7p)$

5. Which expression is equivalent to $8c + 6 - 3c - 2$?

   A. $5c + 4$ B. $5c + 8$ C. $11c + 4$ D. $11c + 8$

6. Which expression is equivalent to $-\frac{1}{3}(6x + 15) - 3$?

   A. $-2x + 12$ B. $-2x + 2$

   C. $-2x - 2$ D. $-2x - 8$

7. Josh has a rewards card for a movie theater.

   - He receives 15 points for becoming a rewards card holder.
   - He earns 3.5 points for each visit to the movie theater.
   - He needs at least 55 points to earn a free movie ticket.

   Which inequality can Josh use to determine x, the minimum number of visits he needs to earn his first free movie ticket?

   A. $55 \geq 3.5x + 15$ B. $55 \geq 15x + 3.5$

   C. $55 \leq 3.5x + 15$ D. $55 \leq 15x + 3.5$

8. Which expression is equivalent to $(7x - 5) - (3x - 2)$?

A. $10x - 7$ B. $10x - 3$ C. $4x - 7$ D. $4x - 3$

9. Solve for x.

$$0.5x + 78.2 = 287$$

A. $x = 104.4$ B. $x = 417.6$

C. $x = 495.8$ D. $x = 730.4$

10. A recipe requires $\frac{1}{3}$ cup of milk for each $\frac{1}{4}$ cup of water. How many cups of water are needed for each cup of milk?

A. $\frac{1}{12}$ B. $\frac{3}{4}$ C. $\frac{11}{12}$ D. $1\frac{1}{3}$

11. Verda used a sensor to measure the speed of a moving car at different times. At each time, the sensor measured the speed of the car in both miles per hour and kilometers per hour. The table below shows her results.

RECORDED SPEEDS

Speed (miles per hour)	Speed (kilometers per hour)
11.0	17.699
26.0	41.834
34.0	54.706

Based on her results, which statement describes the relationship between m, the speed of the car in miles per hour, and k, the speed of the car in kilometers per hour?

A. The relationship is proportional because the ratio of m to k is constant.

B. The relationship is not proportional because the ratio of m to k is constant.

C. The relationship is proportional because the difference between m and k is constant.

D. The relationship is not proportional because the difference between m and k is constant.

12. The cost of oranges in a grocery store is directly proportional to the number of oranges purchased. Jerri paid \$2.52 for 6 oranges. If p represents the cost, in dollars, and n represents the number of oranges purchased, which equation best represents this relationship?

A. $p = 0.42n$ B. $p = 2.52n$

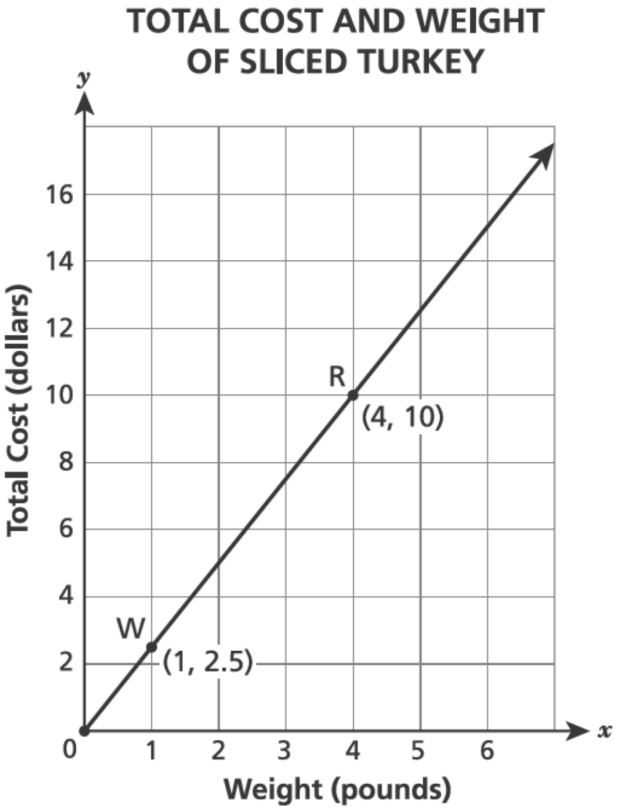
C. $p = 6n$ D. $p = 15.12n$

13. Maya uses blue and orange fabric to make identical wall decorations. The graph below shows the relationship between the amounts of blue and orange fabric used.

What is the constant of proportionality as shown in the graph?

A. $\frac{3}{10}$ B. $\frac{2}{5}$ C. $\frac{3}{7}$ D. $\frac{1}{2}$

14. A grocery store sells sliced turkey. The graph shows the relationship between the weight of the sliced turkey and the total cost of the sliced turkey. Two points, R and W, are labeled on the graph shown below.



Which statement about the graph is true?

A. Point R means that the unit rate is \$10.00 per pound.

B. Point R means that the unit rate is 4 pounds per dollar.

C. Point W means that the unit rate is \$2.50 per pound.

D. Point W means that the unit rate is 2.5 pounds per dollar.

15. Last year 950 people attended a town's annual parade. This year 1,520 people attended. What was the percent increase in attendance from last year to this year?

A. 37.5% B. 57.0% C. 60.0% D. 62.5%

Name			
Date		Period	

	A	B	C	D	E		A	B	C	D	E
1	○	○	○	○	○	11	○	○	○	○	○
2	○	○	○	○	○	12	○	○	○	○	○
3	○	○	○	○	○	13	○	○	○	○	○
4	○	○	○	○	○	14	○	○	○	○	○
5	○	○	○	○	○	15	○	○	○	○	○
6	○	○	○	○	○	16	○	○	○	○	○
7	○	○	○	○	○	17	○	○	○	○	○
8	○	○	○	○	○	18	○	○	○	○	○
9	○	○	○	○	○	19	○	○	○	○	○
10	○	○	○	○	○	20	○	○	○	○	○

Test Version: A ○ B ○ C ○ D ○

This will be the rubric we will use to grade the tasks.

3-Point Holistic Rubric

Score Points:

3 Point	A three-point response includes the correct solution(s) to the question and demonstrates a thorough understanding of the mathematical concepts and/or procedures in the task. This response • indicates that the student has completed the task correctly, using mathematically sound procedures • contains sufficient work to demonstrate a thorough understanding of the mathematical concepts and/or procedures • may contain inconsequential errors that do not detract from the correct solution(s) and the demonstration of a thorough understanding
2 Point	A two-point response demonstrates a partial understanding of the mathematical concepts and/or procedures in the task. This response • appropriately addresses most, but not all aspects of the task using mathematically sound procedures • may contain an incorrect solution but provides sound procedures, reasoning, and/or explanations • may reflect some minor misunderstanding of the underlying mathematical concepts and/or procedures
1 Point	A one-point response demonstrates only a limited understanding of the mathematical concepts and/or procedures in the task. This response • may address some elements of the task correctly but reaches an inadequate solution and/or provides reasoning that is faulty or incomplete • exhibits multiple flaws related to misunderstanding of important aspects of the task, misuse of mathematical procedures, or faulty mathematical reasoning • reflects a lack of essential understanding of the underlying mathematical concepts • may contain the correct solution(s) but required work is limited
0 Point*	A zero-point response is incorrect, irrelevant, incoherent, or contains a correct solution obtained using an obviously incorrect procedure. Although some elements may contain correct mathematical procedures, holistically they are not sufficient to demonstrate even a limited understanding of the mathematical concepts embodied in the task.

*Condition Code A is applied whenever a student who is present for a test session leaves an entire constructed-response question in that session completely blank (no response attempted).

Task I

John has decided to fix up an old field for his son's horse. The length of the field is 10 meters less than 4 times its width. First, he fenced in the field at a cost of $4.80 per meter. The total cost was $1,584. He now needs to buy sweet grass seed to plant in the field. The seed costs $3.98 per bag and covers 460 square meters.
How much money will John have invested in this field?

Task II

3 members of a family ski together on Sundays, December through February. A season's ski pass costs $385.00 for the 1st family member, 75% off for the 2nd family member and 50% off for the 3rd family member.

A day pass costs $21.00.

Using the calendar year below, determine which is the better buy for this family of 3, the day pass or the season ski pass.

Task III

Jim needs to rent a car. A rental company charges $21.00 per day to rent a car and $0.10 for every mile driven.

- He will travel 250 miles.
- He has $115.00 to spend.

Write an inequality that can be used to determine *d*, the maximum number of days that Jim can rent a car.

Jim believes the maximum whole number of days he can rent the car is 5. Is he correct? Why or why not?

Explain your answer.