RISING MATH 7

Summer 2022

Greetings Rising 7th Grader and Welcome to Math 7!

The purpose of this summer school packet of mathematics problems is to provide you the opportunity to review material that you may have learned last year, to give you a great start to the upcoming 2022 - 2023 school year.

We want to encourage you to at least try some of the problems. And, you can work on this packet in one sitting, or do some problems one day, and come back to other problems on other days; it is completely up to you! Instead, Try to do one or two problems a day.

We hope that you have a wonderful summer and are looking forward to the upcoming school year.

Sincerely,

Montgomery County Public Schools Secondary Mathematics Team

Rising 7th Grade Summer Review Packet

1. In a fruit basket there are 9 bananas, 4 apples, and 3 plums.

      a) The ratio of bananas to apples is _____ : _____.

      b) The ratio of plums to apples is _____ to _____.

      c) For every _____ apples, there are _____ plums.

      d) For every 3 bananas there is one _____.

2. To make a snack mix, combine 2 cups of raisins with 4 cups of pretzels and 6 cups of almonds.

    a) Create a diagram to represent the quantities of each ingredient in this recipe.

b) Use your diagram to complete each sentence.

- The ratio of _____ to _____ to _____ is _____ : _____ : _____.

- There are _____ cups of pretzels for every cup of raisins.

- There are _____ cups of almonds for every cup of raisins.

3. A recipe for 1 batch of spice mix says, "Combine 3 teaspoons of mustard seeds, 5 teaspoons of chili powder, and 1 teaspoon of salt." How many batches are represented by the diagram? Explain or show your reasoning.
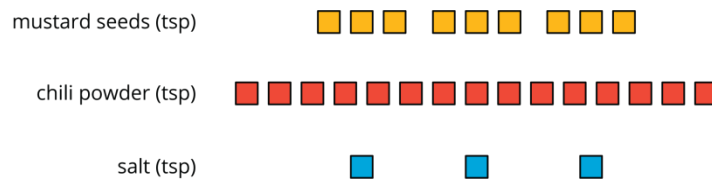
4. In a recipe for fizzy grape juice, the ratio of cups of sparkling water to cups of grape juice concentrate is 3 to 1.

  a. Find two more ratios of cups of sparkling water to cups of juice concentrate that would make a mixture that tastes the same as this recipe.

 b. Describe another mixture of sparkling water and grape juice that would taste different than this recipe.

5. Each of these is a pair of equivalent ratios. For each pair, explain why they are equivalent ratios or draw a diagram that shows why they are equivalent ratios.

  a. 4: 5 and 8: 10

  b. 18: 3 and 6: 1

6. A particular shade of orange paint has 2 cups of yellow paint for every 3 cups of red paint. On the double number line, circle the numbers of cups of yellow and red paint needed for 3 batches of orange paint.

yellow paint (cups)
0   2   4   6   8   10   12

red paint (cups)
0   3   6   9   12   15   18
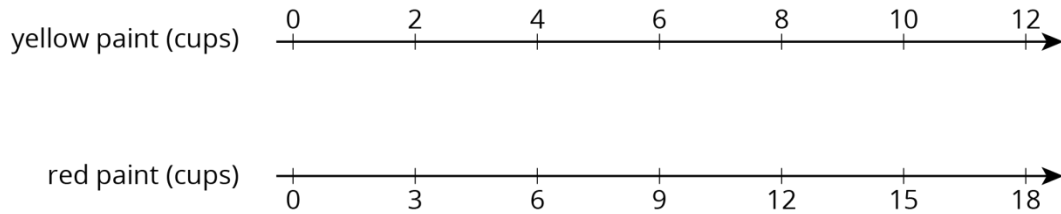
7. A recipe for tropical fruit punch says, "Combine 4 cups of pineapple juice with 5 cups of orange juice."

　　　a) Create a double number showing the amount of each type of juice in 1, 2, 3, 4, and 5 batches of the recipe.

　　　b) If 12 cups of pineapple juice are used with 20 cups of orange juice, will the recipe taste the same? Explain your reasoning.

c) The recipe also calls for $\frac{1}{3}$ cup of lime juice for every 5 cups of orange juice. Add a line to your diagram to represent the amount of lime juice in different batches of tropical fruit punch.

8. Han ran 10 meters in 2.7 seconds. Priya ran 10 meters in 2.4 seconds.

    a) Who ran faster? Explain how you know.

    b) At this rate, how long would it take each person to run 50 meters? Explain or show your reasoning.

9. A slug travels 3 centimeters in 3 seconds. A snail travels 6 centimeters in 6 seconds. Both travel at constant speeds. Mai says, "The snail was traveling faster because it went a greater distance." Do you agree with Mai? Explain or show your reasoning.

10. If you blend 2 scoops of chocolate ice cream with 1 cup of milk, you get a milkshake with a stronger chocolate flavor than if you blended 3 scoops of chocolate ice cream with 2 cups of milk. Explain or show why.

11. Complete the table to show the amounts of yellow and red paint needed for different-sized batches of the same shade of orange paint.

yellow paint (quarts)	red paint (quarts)
5	6

Explain how you know that these amounts of yellow paint and red paint will make the same shade of orange as the mixture in the first row of the table.

12. Kiran reads 5 pages in 20 minutes. He spends the same amount of time per page. How long will it take him to read 11 pages? If you get stuck, consider using the table.

time in minutes	number of pages
20	5
	1
	11

13. A bread recipe uses 3 tablespoons of olive oil for every 2 cloves of crushed garlic.

a. Complete the table to show different-sized batches of bread that taste the same as the recipe.

b. Draw a double number line that represents the same situation.

c. Which representation do you think works better in this situation? Explain why.

olive oil (tablespoons)	crushed garlic (cloves)
3	2
1	
2	
5	
10	

14. Han and Tyler are following a polenta recipe that uses 5 cups of water for every 2 cups of cornmeal.

Han says, "I am using 3 cups of water. I will need 1 1/5 cups of cornmeal."
Tyler says, "I am using 3 cups of cornmeal. I will need 7 1/2 cups of water."
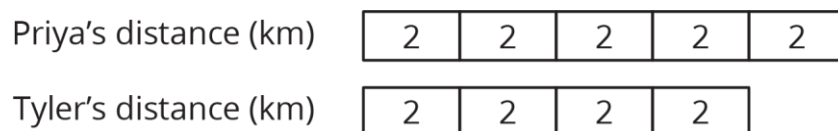
Do you agree with either of them? Explain your reasoning.

15. What percentage of a dollar is the value of each coin combination?

    a.   4 dimes

    b.   1 nickel and 3 pennies

    c.   5 quarters and 1 dime

16. Here is a tape diagram that shows how far two students walked.

Priya's distance (km)	2	2	2	2	2
Tyler's distance (km)	2	2	2	2	

a) What percentage of Priya's distance did Tyler walk?

b) What percentage of Tyler's distance did Priya walk?

17. Han spent 75 minutes practicing the piano over the weekend. For each question, explain or show your reasoning.

      a) Priya practiced the violin for 152% as much time as Han practiced the piano. How long did she practice?

      b) Tyler practiced the clarinet for 64% as much time as Han practiced the piano. How long did he practice?

18. Order from greatest to least:

      a) 55% of 180

      b) 300% of 26

      c) 12% of 700

19. Match each equation to one of the two tape diagrams.

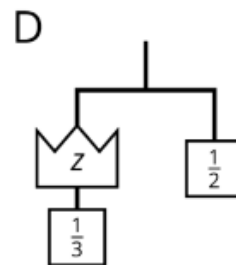a) $x + 3 = 9$

b) $3 \bullet x = 9$
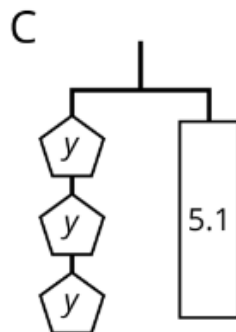
c) $9 = 3 \bullet x$

d) $3 + x = 9$

e) $x = 9 - 3$

f) $x = 9 \div 3$

g) $x + x + x = 9$

A

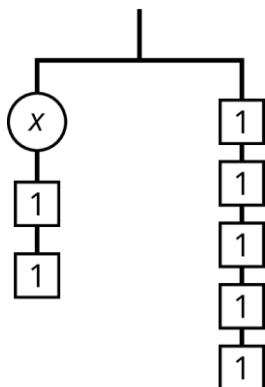| x | x | x |

9

B

| x | 3 |

9
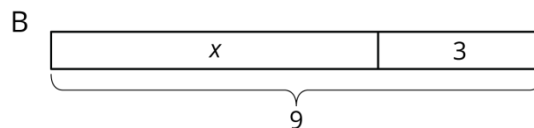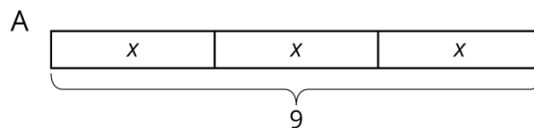
20. Write an equation to represent each hanger.

A   B   C   D
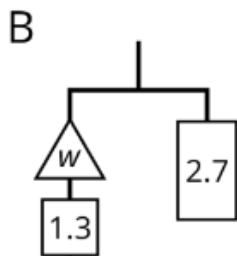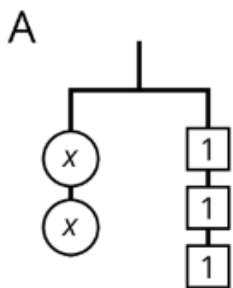
21. Andre says that x is 7 because he can move the two 1s with the x to the other side.

Do you agree with Andre? Explain your reasoning.

22. Tyler has 3 times as many books as Mai.

a) How many books does Mai have if Tyler has:

15 books?   21 books   x books?

b) Tyler has 18 books. How many books does Mai have?

23. 40% of x is 35.

      a) Write an equation that shows the relationship of 40%, x, and 35.

      b) Use your equation to find x. Show your reasoning.

24. a) Do $4x$ and $15 + x$ have the same value when x is 5?

      b) Are $4x$ and $15 + x$ equivalent expressions? Explain your reasoning.

25. Select **all** the expressions that are equivalent to $4b$.

    A. $b + b + b + b$

    B. $b + 4$

    C. $2b + 2b$

    D. $b \bullet b \bullet b \bullet b$

    E. $b \div \frac{1}{4}$