



RISING AMP7+

Summer 2022



Greetings Rising 7th Grader and Welcome to AMP7+!

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 AMP7+ Summer Review Packet

1. 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

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



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



3. 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?

4. Order from greatest to least:

a) 55% of 180

b) 300% of 26

c) 12% of 700



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

a) $x + 3 = 9$

b) $3 \cdot x = 9$

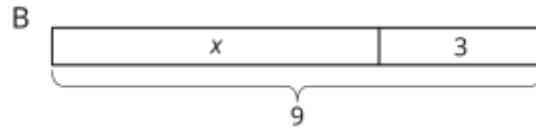
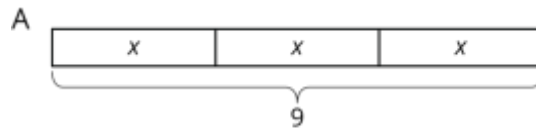
c) $9 = 3 \cdot x$

d) $3 + x = 9$

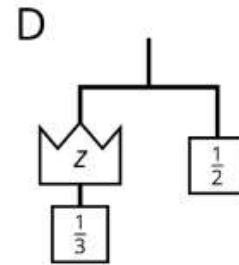
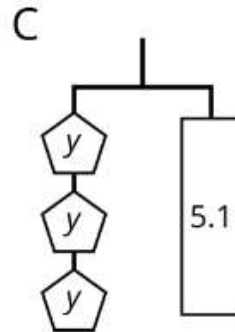
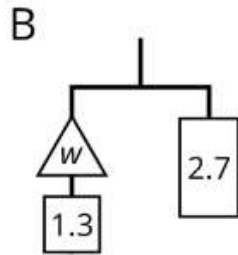
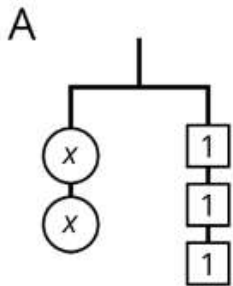
e) $x = 9 - 3$

f) $x = 9 \div 3$

g) $x + x + x = 9$

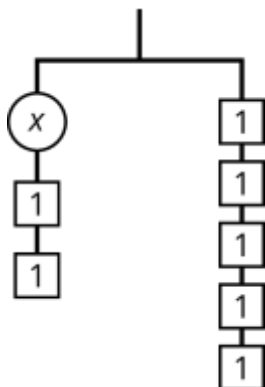


5. Write an equation to represent each hanger.



6. 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.



7. 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?



8. 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.

9. 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.



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

A. $b + b + b + b$

B. $b + 4$

C. $2b + 2b$

D. $b \cdot b \cdot b \cdot b$

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

11. A certain shade of pink is created by adding 3 cups of red paint to 7 cups of white paint.

a) How many cups of red paint should be added to 1 cup of white paint?

cups of white paint	cups of red paint
1	
7	3

b) What is the constant of proportionality?



12. Select **all** the ratios that are equivalent to each other.

A. 4:7

B. 8:15

C. 16:28

D. 2:3

E. 20:35

13. A certain ceiling is made up of tiles. Every square meter of ceiling requires 10.75 tiles. Fill in the table with the missing values.

square meters of ceiling	number of tiles
1	
10	
	100
a	



14. A store sells rope by the meter. The equation $p = 0.8L$ represents the price p (in dollars) of a piece of nylon rope that is L meters long.

a) How much does the nylon rope cost per meter?

b) How long is a piece of nylon rope that costs \$1.00?

15. Elena has some bottles of water that each holds 17 fluid ounces.

a) Write an equation that relates the number of bottles of water (b) to the total volume of water (w) in fluid ounces.

b) How much water is in 51 bottles?

c) How many bottles does it take to hold 51 fluid ounces of water?



16. Decide whether each table could represent a proportional relationship. If the relationship could be proportional, what would the constant of proportionality be?

a) How loud a sound is depending on how far away you are.

distance to listener (ft)	sound level (dB)
5	85
10	79
20	73
40	67

b) The cost of fountain drinks at Hot Dog Hut.

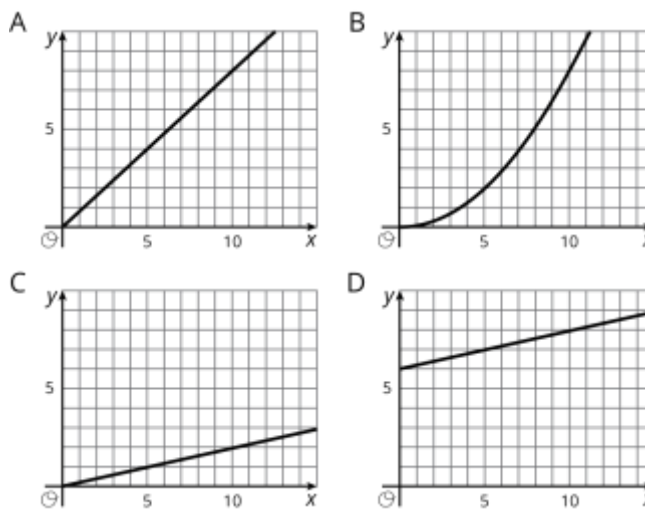
volume (fluid ounces)	cost (\$)
16	\$1.49
20	\$1.59
30	\$1.89



17. A rabbit and turtle are in a race. Is the relationship between distance traveled and time proportional for either one? If so, write an equation that represents the relationship.

Turtle's run:		Rabbit's run:	
distance (meters)	time (minutes)	distance (meters)	time (minutes)
108	2	800	1
405	7.5	900	5
540	10	1,107.5	20
1,768.5	32.75	1,524	32.5

18. Which graphs could represent a proportional relationship?

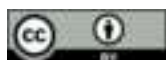


a) A

b) B

c) C

d) D



19. A lemonade recipe calls for $\frac{1}{4}$ cup of lemon juice for every cup of water.

- a. Use the table to answer these questions.
- What does x represent?
 - What does y represent?
 - Is there a proportional relationship between x and y ?
- b. Plot the pairs in the table in a coordinate plane.

x	y
1	$\frac{1}{4}$
2	$\frac{1}{2}$
3	$\frac{3}{4}$
4	1

20. Lin and Andre biked home from school at a steady pace. Lin biked 1.5 km and it took her 5 minutes. Andre biked 2 km and it took him 8 minutes.

a) Draw a graph with two lines that represent the bike rides of Lin and Andre.

b) For each line, highlight the point with coordinates $(1, k)$ and find k .

c) Who was biking faster?

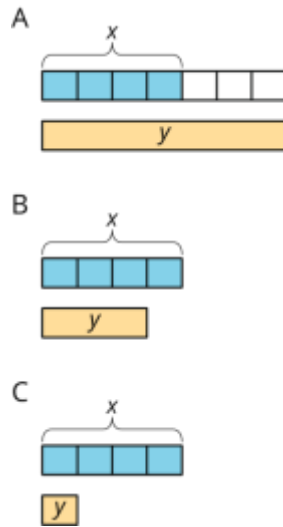


21. Match each equation to its graph.

<p>a) $y = 2x$</p> <p>b) $y = \frac{4}{5}x$</p> <p>c) $y = \frac{1}{4}x$</p> <p>d) $y = \frac{2}{3}x$</p> <p>e) $y = \frac{4}{3}x$</p> <p>f) $y = \frac{3}{2}x$</p>	<p>1</p>	<p>2</p>
	<p>3</p>	<p>4</p>
	<p>5</p>	<p>6</p>



22. Match each situation with a diagram.



<p>A. Diagram A</p> <p>B. Diagram B</p> <p>C. Diagram C</p>	<p>1. Diego drank x ounces of juice. Lin drank $\frac{1}{4}$ less than that.</p> <p>2. Lin ran x miles. Diego ran $\frac{3}{4}$ more than that.</p> <p>3. Diego bought x pounds of almonds. Lin bought $\frac{1}{4}$ of that.</p>
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23. At the beginning of the month, there were 80 ounces of peanut butter in the pantry. Since then, the family ate 0.3 of the peanut butter. How many ounces of peanut butter are in the pantry now?

a) $0.7 \cdot 80$

b) $0.3 \cdot 80$

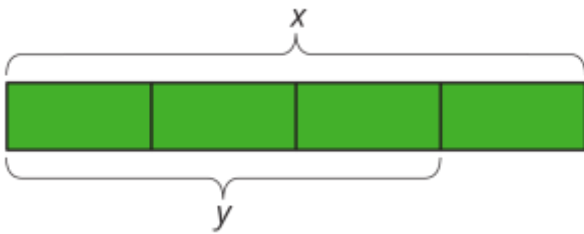
c) $80 - 0.3$

d) $(1 + 0.3) \cdot 80$

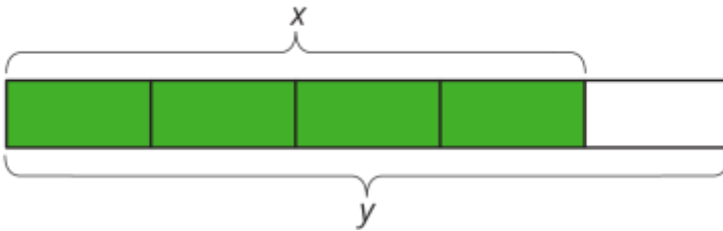


24. For each diagram, decide if y is an increase or a decrease relative to x . Then determine the percent increase or decrease.

A



B



25. Last week, the price of oranges at the farmer's market was \$1.75 per pound. This week, the price has decreased by 20%. What is the price of oranges this week?

