

WSMS Middle School

2022 Summer Rising 7th Grade












Student Name _____
(Please be sure to write your initials on the line at the bottom of each page.)










This packet contains math concepts that may or may not have been taught in your previous classes but are important for 7th grade. Students enrolled in 7th grade Pre-Algebra for the 2022-2023 school year are expected to submit a completed packet during the first week of school (August 8-12). Exact due dates/procedures will be discussed on August 8th.

7th Grade Summer Math Packet Instructions

Student Name _____

1. This packet has 6 sections, and it is recommended that students work on one section each week during the summer. It is **NOT** recommended to complete this packet immediately following school dismissal **nor** the night before the packet is due. Student learning is most effective if the packet is worked on throughout the summer at a steady pace.
2. You should complete the problems without a calculator, and you should **SHOW ALL YOUR WORK.** Use additional paper is needed. No credit will be provided if your work is not shown.
3. After completing a section, rate your understanding of each week's topic by circling the image in the chart below.
 - **Smiley face** – You understand ALL the concepts for that week and would be able to teach it to another student.
 - **Neutral face** – You understand the concepts for the most part
 - **Confused face** – You do not understand these concepts and need help reviewing.

WEEK	MATH TOPIC	MY RATING
1	Integer Operations	  
2	Order of Operations	  
3	Equivalent Fractions	  

4	Ratio and Unit Rate	  
5	Converting fractions to decimals	  
6	Mixed Review	  

What do I do if I don't understand something?

- Use your resources (online help sites, iReady, videos, parents, siblings, etc.)
- You may use the reference links in this packet to help you.
- Make a note of the topic/question on the rating chart and ask your teacher to review it during the first week of school.

What happens next?

- Concepts will be reviewed and discussed during the first week of school.
- Students will receive both a participation grade and an assessment grade, based on the packet completion. (Your teacher will discuss this with you August 8, 2022.)

We are excited about working with all of the students entering 7th grade in 2022-2023. We want all students to feel prepared, confident, and successful for all of the important new concepts they will learn next year.



Rising 7th Grader RESOURCES

WEEK	MATH TOPIC	VIDEO & TUTORIAL LINKS
1	Integer Operations	<ul style="list-style-type: none"> https://www.khanacademy.org/math/cc-seventh-grade-math/cc-7th-negative-numbers-add-and-subtract/cc-7th-sub-neg-intro/v/adding-and-subtracting-negative-number-examples https://www.youtube.com/watch?v=0hEQL3F5mc8
2	Order of Operations	<ul style="list-style-type: none"> https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-arithmetic-operations/cc-6th-order-of-operations/v/order-of-operations-1 https://www.youtube.com/watch?v=dXvvGc9TldY
3	Equivalent Fractions	<ul style="list-style-type: none"> fractions https://youtu.be/9DV8gM9Ywgc
4	Ratio and Unit Rate	<ul style="list-style-type: none"> rates and ratios
5	Converting fractions to decimals	<ul style="list-style-type: none"> https://youtu.be/do_lbHld2Os
6	Mixed Review	<ul style="list-style-type: none"> Graphing

Week 1: Integer Operations

Addition

When addends have the same sign, add. Use that sign when you write the sum:

$$5 + 8 = 13$$

$$-2 + -5 = -7$$

When addends have different signs, subtract. Use the sign of the greater addend:

$$-6 + 4 = -2$$

$$45 + -10 = 35$$

Subtraction

To subtract an integer, add its opposite:

*The opposite of 12 is -12

$$4 - 12 = 4 + -12 = -8$$

$$9 - -12 = 9 + 12 = 21$$

*The opposite of 15 is -15

$$1 - -15 = 1 + 15 = 16$$

$$-20 - -15 = -20 + 15 = -5$$

Multiplication

When factors have the same sign, the product is positive:

$$5 \cdot 6 = 30$$

$$-13 \cdot -3 = 39$$

When the factors have different signs, the product is negative:

$$-6 \cdot 8 = -48$$

$$9 \cdot -11 = -99$$

Division

When the dividend and the divisor have the same sign, the quotient is positive:

$$45 \div 5 = 9$$

$$-120 \div -6 = 20$$

When the dividend and the divisor have different signs, the quotient is negative:

$$35 \div -5 = -7$$

$$-250 \div 10 = -25$$

Solve:

1. $-2 + (+3) =$

2. $-3(-4) =$

3. $45 - (-27) =$

4. $-5 + (+4) =$

5. $24 \div (-6) =$

6. $19(-4) =$

7. $5 - (-3) =$

8. $5(-18) =$

8. $-42 \div (-6) =$

9. $-7 - (-3) =$

10. $-8 \div (-4) =$

11. $-21 + -19 =$

12. $-14 - 6 =$

13. $17(-4) =$

14. $32 \div (-4) =$

15. $6 + (-8) =$

16. $81 \div (-9) =$

17. $14 - (-7) + (-2) =$

18. $93 - -21 =$

19. $-7 + 2 =$

20. $-21 \div (-7) =$

21. $-3 * -6$

22. $15 * -3$

23. $-4 * 9$

24. $-3 * -5 * -6$

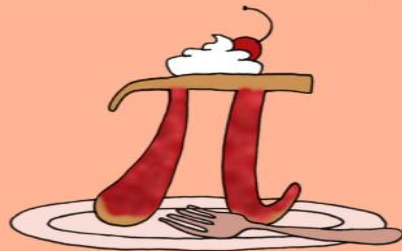
25. $-24 \div -3$

26. $40 \div -8$

27. $10 * -9$

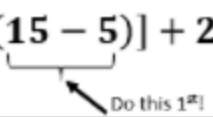




28. $-98 \div 7$

**Why shouldn't you let advanced
math intimidate you?**



It's really as easy as *pi*!

Week 2: Order of Operations

Order of Operations			
1 st	Grouping Symbols	$\frac{4+2}{8 \cdot 7} = \frac{(4+2)}{(8 \cdot 7)}$ $\sqrt{50-1}$ $50 - [3 \cdot (15 - 5)] + 23$ 	Grouping Symbols include: $()$, $\{\}$, $[\]$, $ $ ← absolute value bars. In addition, complete all operations grouped by the <u>numerator</u> or <u>denominator</u> in a fraction & operations located underneath a radical symbol.
2 nd	Radicals & Exponents	3^2 $3^{\frac{1}{2}}$ $\sqrt{3}$ $\sqrt[4]{81}$	Rational Exponents & Roots are included
3 rd	Division & Multiplication	$30 \div 2 \cdot 5 = 75$ versus $30 \cdot 2 \div 5 = 12$ 	Calculate Left to Right 
4 th	Subtraction & Addition	$-2 + 6 - 8 = -4$ 	Calculate Left to Right 

Use the order of operations to solve the following problems.

1. $18 - (-12 - 3) =$

2. $-19 + (7 + 4)3 =$

3. $18 + (-7) \cdot (32 - 6) =$

4. $-19 - (-3) + -2(8 + -4) =$

5. $20 + -4(32 - 6) =$

6. $-3 + 2(-6 \div 3)2$

7. $3 \cdot (-4) + (52 + -4 \cdot 2) - (-9.82) =$

$$8. 23 + (-16) \div 42 \cdot 5 - (-3) =$$

$$9. -6(12 - 15) + 23 =$$

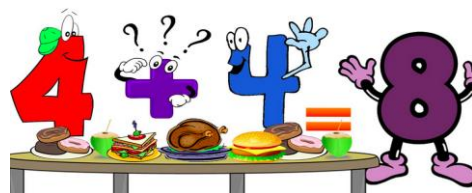
$$10. -50 \div (-10) + (5 - 3)4 =$$

$$11. -4.5 \cdot (-0.53) + (-1)$$

$$12. 5 - 2 + 8$$

$$13. 85 \div 5 + (8+9) \times 2 =$$

Why didn't the two 4's feel like dinner?
Because they already 8.



Week 3: Equivalent Fractions

Simplify each fraction to its lowest terms

$$1. \frac{7}{14} = \frac{1}{2}$$

$$11. \frac{24}{33} =$$

$$21. \frac{9}{27} =$$

$$31. \frac{8}{56} =$$

$$2. \frac{4}{20} =$$

$$12. \frac{24}{40} =$$

$$22. \frac{7}{56} =$$

$$32. \frac{27}{99} =$$

$$3. \frac{14}{21} =$$

$$13. \frac{40}{110} =$$

$$23. \frac{45}{54} =$$

$$33. \frac{4}{12} =$$

$$4. \frac{12}{21} =$$

$$14. \frac{36}{40} =$$

$$24. \frac{30}{55} =$$

$$34. \frac{3}{6} =$$

$$5. \frac{12}{18} =$$

$$15. \frac{2}{18} =$$

$$25. \frac{20}{35} =$$

$$35. \frac{9}{54} =$$

$$6. \frac{5}{50} =$$

$$16. \frac{10}{120} =$$

$$26. \frac{30}{36} =$$

$$36. \frac{9}{18} =$$

$$7. \frac{30}{72} =$$

$$17. \frac{8}{96} =$$

$$27. \frac{10}{24} =$$

$$37. \frac{3}{24} =$$

$$8. \frac{4}{40} =$$

$$18. \frac{50}{60} =$$

$$28. \frac{10}{20} =$$

$$38. \frac{6}{16} =$$

$$9. \frac{12}{30} =$$

$$19. \frac{10}{45} =$$

$$29. \frac{35}{56} =$$

$$39. \frac{24}{42} =$$

$$10. \frac{30}{55} =$$

$$20. \frac{8}{64} =$$

$$30. \frac{4}{8} =$$

$$40. \frac{15}{21} =$$

Compare each pair of fractions using a $<$, $>$ or $=$ sign.

$$2\frac{5}{8} \square \frac{5}{12}$$

$$\frac{5}{7} \square \frac{3}{6}$$

$$13\frac{1}{2} \square 1\frac{3}{8}$$

$$1\frac{1}{12} \square 4\frac{2}{7}$$

$$\frac{33}{5} \square \frac{28}{11}$$

$$\frac{6}{8} \square \frac{1}{4}$$

$$2\frac{2}{5} \square 3\frac{1}{9}$$

$$\frac{7}{5} \square 3\frac{1}{3}$$

$$\frac{14}{11} \square 2\frac{3}{9}$$

$$\frac{1}{3} \square \frac{2}{5}$$

$$\frac{1}{3} \square \frac{8}{6}$$

$$\frac{6}{9} \square 2\frac{1}{12}$$

$$3\frac{7}{8} \square \frac{22}{3}$$

$$1\frac{3}{6} \square \frac{3}{9}$$

$$\frac{33}{2} \square \frac{1}{12}$$

$$\frac{3}{5} \square 1\frac{7}{8}$$

$$\frac{35}{3} \square \frac{28}{10}$$

$$\frac{9}{12} \square 9\frac{1}{2}$$

$$2\frac{6}{9} \square \frac{28}{3}$$

$$4\frac{6}{7} \square \frac{30}{8}$$

$$\frac{6}{10} \square 4\frac{4}{5}$$

$$17\frac{1}{2} \square \frac{5}{8}$$

$$\frac{2}{3} \square \frac{1}{6}$$

$$\frac{16}{10} \square 2\frac{2}{8}$$

$$\frac{27}{6} \square 1\frac{1}{2}$$

$$5\frac{2}{4} \square 2\frac{3}{12}$$

$$3\frac{4}{9} \square \frac{1}{11}$$

$$\frac{3}{12} \square \frac{1}{4}$$

$$\frac{15}{8} \square \frac{2}{3}$$

$$1\frac{1}{7} \square 1\frac{2}{12}$$

$$\frac{4}{11} \square \frac{32}{11}$$

$$\frac{2}{4} \square \frac{24}{11}$$

$$\frac{9}{4} \square 4\frac{5}{6}$$

$$\frac{28}{9} \square 3\frac{2}{7}$$

$$16\frac{1}{2} \square \frac{5}{12}$$

$$\frac{21}{7} \square \frac{12}{3}$$

$$\frac{20}{12} \square \frac{10}{11}$$

$$\frac{8}{6} \square \frac{33}{7}$$

$$\frac{10}{12} \square \frac{15}{5}$$

$$2\frac{7}{9} \square \frac{32}{11}$$



Fill in the blanks to make equivalent ratios.

1. $20 : 48 = 5 : \underline{\hspace{1cm}}$

2. $36 : 3 = \underline{\hspace{1cm}} : 1$

3. $18 : 27 = 2 : \underline{\hspace{1cm}}$

4. $1 : 8 = 7 : \underline{\hspace{1cm}}$

5. $1 : \underline{\hspace{1cm}} = 3 : 6$

6. $7 : 8 = 49 : \underline{\hspace{1cm}}$

7. $45 : 10 = 9 : \underline{\hspace{1cm}}$

8. $5 : 35 = \underline{\hspace{1cm}} : 7$

9. $99 : 63 = 11 : \underline{\hspace{1cm}}$

10. $80 : 90 = 8 : \underline{\hspace{1cm}}$

11. $12 : 7 = \underline{\hspace{1cm}} : 56$

12. $5 : 11 = \underline{\hspace{1cm}} : 22$

13. $5 : 1 = \underline{\hspace{1cm}} : 5$

14. $9 : 10 = 81 : \underline{\hspace{1cm}}$

15. $27 : 9 = 3 : \underline{\hspace{1cm}}$

16. $\underline{\hspace{1cm}} : 4 = 25 : 20$

17. $10 : 90 = \underline{\hspace{1cm}} : 9$

18. $\underline{\hspace{1cm}} : 8 = 9 : 24$

19. $7 : 2 = \underline{\hspace{1cm}} : 14$

20. $\underline{\hspace{1cm}} : 6 = 35 : 30$



Week 4: Ratio and Unit Rate

Solve each problem.

- Ex) What is the ratio of pentagons to triangles?



- 2) What is the ratio of stars to squares?



- 4) What is the ratio of hearts to moons?



- 6) What is the ratio of moons to stars?



- 8) What is the ratio of pentagons to stars?



- 10) What is the ratio of stars to moons?



- 1) What is the ratio of circles to moons?



- 3) What is the ratio of moons to pentagons?



- 5) What is the ratio of stars to triangles?



- 7) What is the ratio of pentagons to hearts?



- 9) What is the ratio of circles to moons?



- 11) What is the ratio of triangles to pentagons?



Answers

Ex. **12:15**

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

UNIT PRICE

Name: _____ Date: _____

Directions: Find the unit price of each item. Place a check mark next to the item that is the better value.

Item	Size	Total Price	Unit Price	Better Value <small>(Place a check mark)</small>
	9"	\$12.50		
	12"	\$14		
	3.5 oz	\$2.99		
	5 oz	\$3.95		
	96 wipes	\$3.50		
	144 wipes	\$4.25		
	87 oz	\$2.49		
	108 oz	\$3.99		
	18 oz	\$3.99		
	22 oz	\$4.99		
	18 oz	\$2.50		
	34 oz	\$3.75		
	12 oz	\$2.50		
	18 oz	\$3.49		

Week 5:**Converting fractions to decimals**

Convert each fraction to a decimal.

$$\frac{12}{20} =$$

$$\frac{10}{20} =$$

$$\frac{6}{10} =$$

$$\frac{2}{4} =$$

$$\frac{2}{20} =$$

$$\frac{3}{6} =$$

$$\frac{19}{20} =$$

$$\frac{7}{8} =$$

$$\frac{6}{20} =$$

$$\frac{3}{12} =$$

$$\frac{1}{4} =$$

$$\frac{13}{20} =$$

$$\frac{1}{20} =$$

$$\frac{15}{20} =$$

$$\frac{1}{2} =$$

$$\frac{3}{4} =$$

$$\frac{5}{10} =$$

$$\frac{2}{10} =$$

$$\frac{3}{20} =$$

$$\frac{7}{20} =$$

Convert each fraction to a decimal.

$$\frac{3}{8} =$$

$$\frac{9}{12} =$$

$$\frac{7}{10} =$$

$$\frac{2}{4} =$$

$$\frac{2}{20} =$$

$$\frac{3}{4} =$$

$$\frac{6}{8} =$$

$$\frac{1}{4} =$$

$$\frac{19}{20} =$$

$$\frac{2}{10} =$$

$$\frac{1}{10} =$$

$$\frac{3}{6} =$$

$$\frac{1}{8} =$$

$$\frac{10}{20} =$$

$$\frac{12}{20} =$$

$$\frac{5}{20} =$$

$$\frac{7}{8} =$$

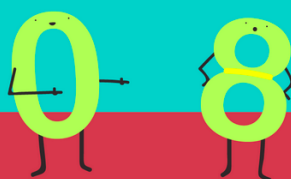
$$\frac{1}{20} =$$

$$\frac{2}{5} =$$

$$\frac{1}{5} =$$

**WHAT DID THE
ZERO SAY TO THE
EIGHT?**

"NICE BELT."



Week 6: Mixed Review

1. Write a ratio in two ways to describe the relationship of the number of forks to the number of spoons.

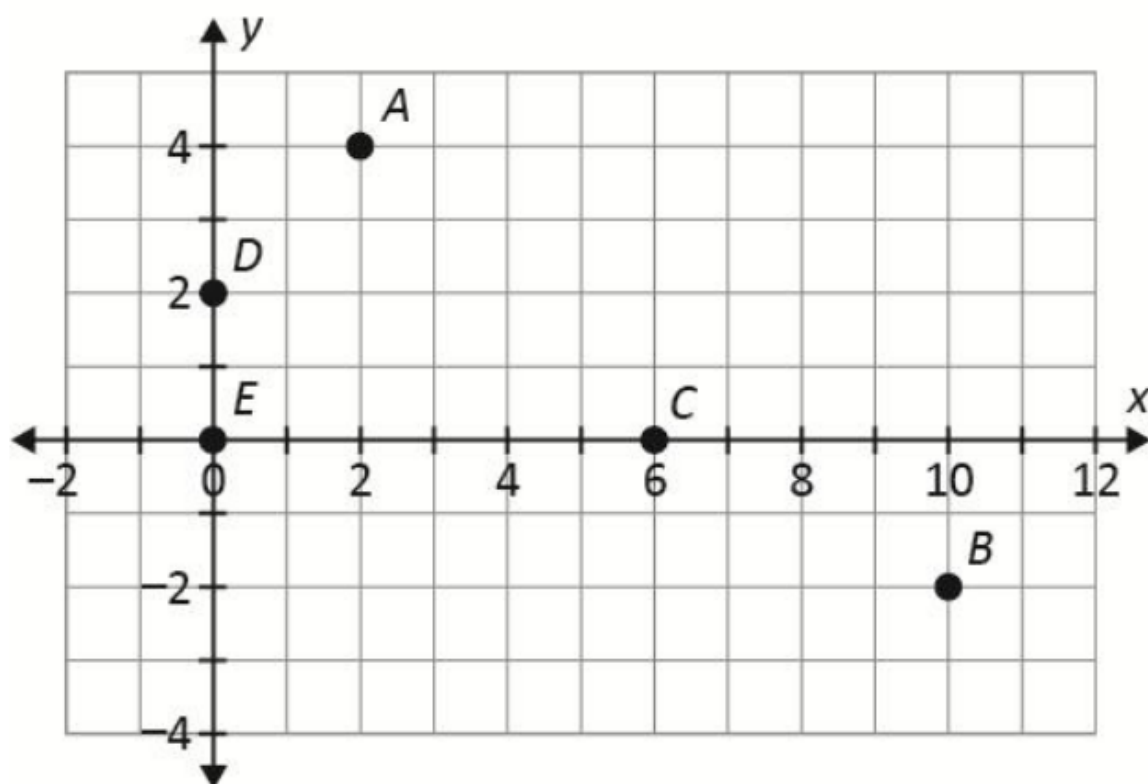


The ratio that describes the relationship of the number of forks to the number of spoons is _____ to _____ or ____: ____.

2. A bakery can make 30 donuts every 15 minutes.

The rate at which the bakery makes donuts is ____ donuts per minute.

3. Points A , B , C , D , and E are graphed on a coordinate plane.



Describe the location of the points on the graph.

Point A is located at (__, __).

Point B is located at (__, __).

Point C is located at (__, __).

Point D is located at (__, __).

Point E is located at (__, __).

4. Jorge plans to mix red paint and blue paint to create purple paint. The color of purple he has decided to make combines red paint and blue paint in the ratio 4 : 1. Jorge made the following ratio table to show some combinations of red and blue paint that will create the purple paint.

Blue (<i>B</i>)	Red (<i>R</i>)
1	4
2	8
3	12
4	16
5	20

Write an equation that lets Jorge calculate the amount of red paint he will need for any given amount of blue paint.

5. Divide.

$$1\frac{1}{4} \div \frac{1}{2}$$

A. $\frac{5}{8}$

B. 2

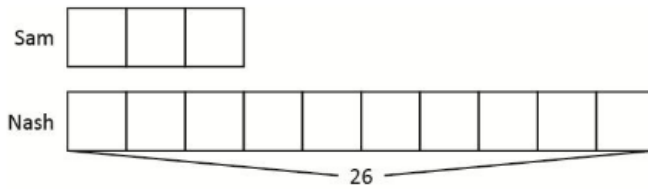
C. $2\frac{1}{2}$

D. 3

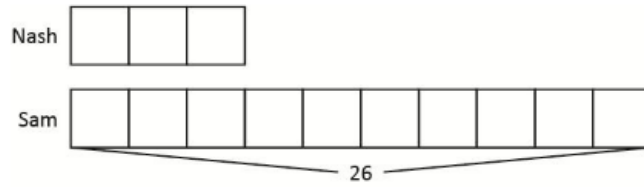
6. The ratio of the number of miles Nash walked to the number of miles Sam walked is 3 : 10. Together they walked a total of 26 miles. How many miles did Nash walk?

Which model would help you solve this problem?

A.



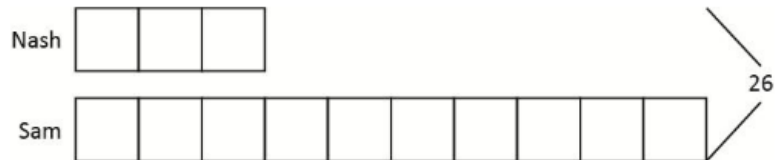
B.



C.



D.

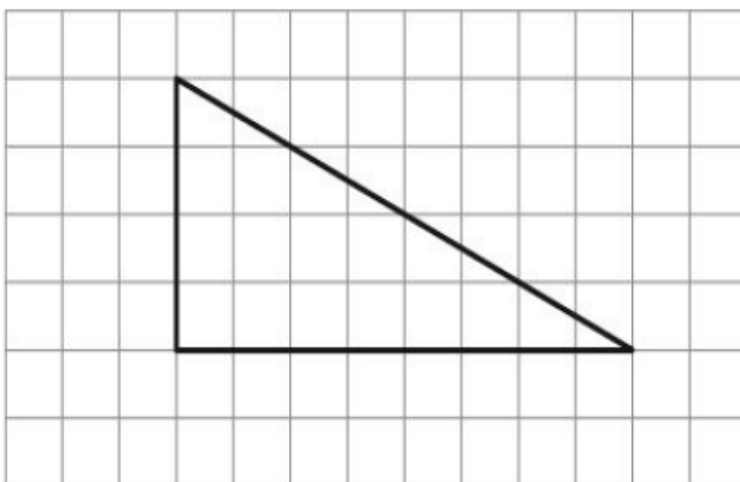


7. What value of x makes the equation true?

$$7x = 84$$

$$x = \underline{\hspace{1cm}}$$

8. Each square on the grid has a length of 1 unit.



What is the area of the triangle?

- A. 16 square units
- B. 22.5 square units
- C. 32 square units
- D. 45 square units

