

Name \_\_\_\_\_

## **Rising 7<sup>th</sup> Grade Summer 2022 Mathematics Packet**

Welcome to 7th grade mathematics at The Village School. This packet consists of important concepts necessary for success in 7th grade math. Completion of this packet is mandatory for all 7th grade students and must be done in pencil. As you complete this packet, show all steps used to arrive at your final answer either in the space provided or on a separate piece of paper labeled accordingly.

### **Operations with Fractions**

1. Simplify each fraction:

a.)  $\frac{35}{49} =$

b.)  $\frac{75}{4} =$

c.)  $4\frac{6}{20} =$

d.)  $\frac{12}{15} =$

2. Add:

a.)  $\frac{2}{3} + \frac{1}{21} =$

b.)  $\frac{9}{12} + \frac{3}{8} =$

c.)  $\frac{4}{7} + \frac{9}{28} =$

d.)  $4\frac{5}{8} + 3\frac{2}{3} =$

e.)  $2\frac{5}{6} + 3\frac{7}{15} =$

f.)  $5\frac{7}{8} + 9\frac{2}{3} =$

3. Subtract:

a.)  $\frac{5}{6} - \frac{2}{3} =$

b.)  $\frac{3}{4} - \frac{4}{7} =$

c.)  $\frac{8}{9} - \frac{3}{8} =$

d.)  $1\frac{5}{12} - \frac{3}{4} =$

e.)  $4\frac{5}{8} - 1\frac{9}{12} =$

f.)  $3\frac{1}{3} - 1\frac{9}{10} =$

g.)  $6\frac{3}{4} - 2\frac{7}{8} =$

h.)  $5 - \frac{17}{20} =$

4. Multiply:

a.)  $\frac{1}{3} \times \frac{3}{5} =$

b.)  $\frac{3}{8} \times \frac{2}{9} =$

c.)  $3 \times \frac{5}{8} =$

d.)  $\frac{4}{15} \times 5 =$

e.)  $8\frac{2}{5} \times 3\frac{2}{3} =$

f.)  $5\frac{5}{8} \times 2\frac{1}{5} =$

g.)  $7\frac{1}{4} \times 6\frac{5}{9} =$

5. Divide:

a.)  $\frac{1}{2} \div \frac{3}{8} =$

b.)  $\frac{9}{10} \div \frac{3}{5} =$

c.)  $9 \div \frac{4}{5} =$

d.)  $\frac{2}{3} \div 4 =$

e.)  $2\frac{1}{2} \div \frac{5}{8} =$

f.)  $\frac{7}{8} \div 8\frac{1}{8} =$

g.)  $3\frac{5}{6} \div 2\frac{2}{3} =$

### **Decimal Operations**

1. Add:

a.)  $7.096 + 1.72 =$

b.)  $1.002 + 34.06 =$

c.)  $3.1 + 0.03 =$

d.)  $23.48 + 308.102 =$

e.)  $893.998 + 297.123 =$

2. Subtract:

a.)  $237.05 - 75.008 =$

b.)  $10.056 - 6.8671 =$

c.)  $30.09 - 6.348 =$

d.)  $1000.1 - 99.999 =$

e.)  $207.13 - 13.29 =$

3. Multiply:

a.)  $34.92 \times 12.3 =$

b.)  $135.707 \times 2.48 =$

c.)  $0.937 \times 2.13 =$

d.)  $50.31 \times 0.87 =$

e.)  $289.06 \times 0.483 =$

4. Divide:

a.)  $60.3 \div 0.3 =$

b.)  $237.5 \div 2.5 =$

c.)  $7.32 \div 8 =$

d.)  $1008 \div 0.09 =$

e.)  $1.354 \div 0.16 =$

**Order of Operations**

1.)  $8 + \frac{(12-8)^2}{2} =$

2.)  $89 - 4^2 \times 4 + 12 =$

3.)  $6 \times (36 \div 12)^2 + 8 =$

4.)  $320 \div \left( \frac{(4+2)^2}{4} \right) - 7 =$

$$5.) 6 + 3(13 - 2) - 5^2 =$$

### Solving One-step Equations

$$1.) 32 + a = 64 \quad 2.) 716 - d = 429 \quad 3.) g - 57 = 177 \quad 4.) c + 0.92 = 1.78$$

$$a = \underline{\hspace{2cm}} \quad d = \underline{\hspace{2cm}} \quad g = \underline{\hspace{2cm}} \quad c = \underline{\hspace{2cm}}$$

$$5.) 3y = 36 \quad 6.) \frac{x}{5} = 34.5 \quad 7.) 0.36k = 4.32 \quad 8.) \frac{y}{3.2} = 38.4$$

$$y = \underline{\hspace{2cm}} \quad x = \underline{\hspace{2cm}} \quad k = \underline{\hspace{2cm}} \quad y = \underline{\hspace{2cm}}$$

### Integers

Compare the following integers using these symbols  $>$   $<$   $=$  .

$$1.) -9 \underline{\hspace{1cm}} 2 \quad 2.) 0 \underline{\hspace{1cm}} 5 \quad 3.) 3 \underline{\hspace{1cm}} -7$$

$$4.) -1 \underline{\hspace{1cm}} -3 \quad 5.) -2 \underline{\hspace{1cm}} -6$$

Find the absolute value.

1.)  $|-5| =$  \_\_\_\_\_      2.)  $|7| =$  \_\_\_\_\_      3.)  $|-232| =$  \_\_\_\_\_

4.)  $|52| =$  \_\_\_\_\_      5.)  $|-14| =$  \_\_\_\_\_

Complete the following statements.

Write the integer that describes 17 feet below sea level \_\_\_\_\_

The temperature is 14 degrees below zero. \_\_\_\_\_

Frank withdrew \$272 from his account. \_\_\_\_\_

**Surface Area and Volume (Honors only)**

1.) Kevin needs to buy some cardboard to build a box 12 inches long, 8 inches wide, and 10 inches high. How much cardboard is needed to build the box?

Answer: \_\_\_\_\_

2.) Alice wants to wrap a gift box of length 8 inch, height 6 inch, and width 4 inch. How much wrapping paper does Alice need to buy?

Answer: \_\_\_\_\_

3.) Calculate the volume of the rectangular prism with a length of 10 feet, a width of 6 feet, and a height of 4 feet.

Answer: \_\_\_\_\_

4.) Find the volume of a cube with side lengths of 16 meters?

Answer: \_\_\_\_\_

5.) Calculate the surface area of a cube with side lengths of 12 meters?

Answer: \_\_\_\_\_

6.) A rectangular prism is 16 centimeters long, 8 centimeters wide, and 5 centimeters tall. What is the surface area of the prism? Volume?

Surface Area: \_\_\_\_\_

Volume: \_\_\_\_\_

### **GCF and LCM**

Find the GCF and LCM for the following numbers. Use the rainbow method, Factor Trees or the Ladder Method and show your work.

1.) 8, 32

2.) 15, 12

3.) 15, 30, 50

4.) 48, 36

## **PERCENTS**

Complete the table:

<b>Fraction</b>	<b>Decimal</b>	<b>Percent</b>
$\frac{1}{2}$		
	0.25	
$\frac{3}{4}$		
		33%
	0.4	
$\frac{4}{5}$		

## **Ratios and Proportions**

1.) Are the ratios 45:33 and 9:5 equivalent? \_\_\_\_\_

2.) Are the ratios 5 to 7 and 15 to 21 equivalent? \_\_\_\_\_

3.) Solve for n:  $\frac{2}{n} = \frac{3}{24}$  \_\_\_\_\_

4.) Solve for n:  $\frac{2}{3} = \frac{18}{n}$  \_\_\_\_\_

5. Solve for n:  $\frac{n}{9} = \frac{12}{27}$  \_\_\_\_\_

## **Simplifying Expressions**

Combine like terms:

1.  $5x + 3 + 2x - 1$

2.  $4y - y - 3 + 7y$

3.  $10 + 4n + 3n - 6$

4.  $2(3x + 4) - 5$

5.  $15 + 7(x - 2)$

6.  $3(8n + 2) + 14$

Use the distributive property to simplify:

1.  $4(3x + 5)$

2.  $3(12 + 10c)$

3.  $5(8h - 6j)$

Factor each of the following expressions:

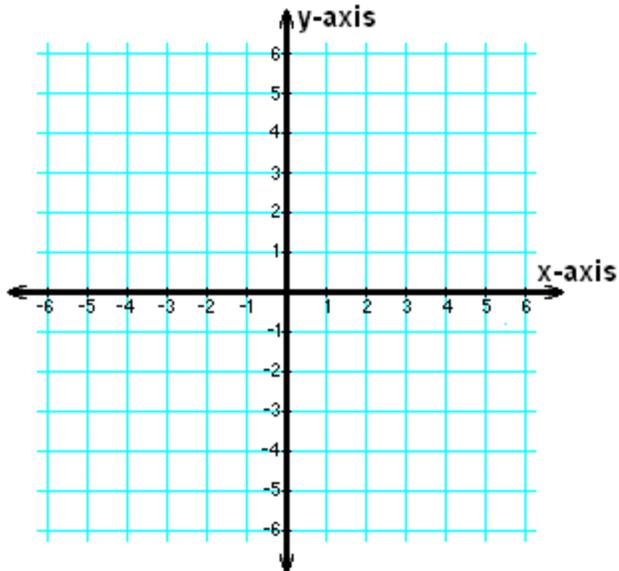
1.  $12x + 15$

2.  $20s - 16$

3.  $55n + 11$

## The Coordinate Plane

Graph each point: A(2,0), B(-3,-4), C(2,-5), D(-1,4), E(1,2), F(0,-3)



Write an equation for each table below:

<b>x</b>	1	2	3	4	5
<b>y</b>	11	22	33	44	55

Equation: \_\_\_\_\_

<b>x</b>	<b>y</b>
10	7
12	9
14	11
16	13
18	15

Equation: \_\_\_\_\_



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**Directions:**

1. On the pages that follow you will find three STEAM activities to choose from. You must choose ONE of the activities to complete and bring to school in August.
2. You must document your chosen STEAM activity using the formats described in each activities' description.
3. On your return to school you must bring in any and all materials and products that were created for the STEAM project. Be prepared to present what you created in class.

## Ratios, Recipes And Treats...Oh My!

For this STEAM activity, you will be using your knowledge of ratios to create a delicious, sweet treat!

Some points to consider when completing this STEAM activity:

- Find a recipe for one of your favorite sweets and double each ingredient in the recipe. Make sure to clearly state the original recipe and then state how it differs after each ingredient is doubled.
- Once your recipe is doubled, you should cook the treat and take a picture or video of you eating your culinary masterpiece! This picture should be included in your write-up of this activity.
- When completing this activity, please be careful as you will be using an oven to bake your treats. Parental discretion is advised as to prevent any kitchen disasters! 😊



Name: \_\_\_\_\_

Ratios, Recipes And Treats...Oh My!  
Write-Up

Original Recipe

Doubled Recipe

1.

1.

2.

2.

3.

3.

4.

4.

5.

5.

6.

6.

7.

7.

8.

8.

9.

9.

10.

10.

# Rate That Trip!

For this STEAM activity, you will be using your knowledge of rates to plan a road trip around the United States!

Some points to consider when completing this STEAM activity:

- You will begin your road trip in Naples, FL and end in San Francisco, CA. You are driving in a car traveling at a rate of 80 mph and the distance between Naples and San Francisco is about 3,000 miles.
- Pace your trip out appropriately and plan some stops along the way to see some cool things!



## Menu Madness

For this STEAM activity, you will be using your knowledge of percents and decimals to create your very own restaurant menu!

Some points to consider when completing this STEAM activity:

- Create a menu for your restaurant, including an entree for breakfast, lunch and dinner. Make sure to price each item appropriately, having each entree at a different price.
- Format your menu in any way you'd like! You can use a format that you've seen in a restaurant or develop your very own, be creative and have fun with it!
- With your completed menu, pretend as if three customers walked in. One buys the breakfast entree, the second buys the lunch entree, and the last buys a dinner entree. Calculate how much money your restaurant will be making in total. Also, calculate tip amounts for your servers (20% for breakfast, 18% for lunch and 15% for dinner) using your set menu prices.

