

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

**2021-2022 (entering) Grade 7 Summer Math Packet**

**Dear Students and Parents:**

**The purpose of this packet is to review 6<sup>th</sup> grade concepts as you look forward to 7<sup>th</sup> Grade. All concepts in this packet have been previously covered in 6<sup>th</sup> grade. While this packet is optional for completion and will not be handed in for a grade, students are encouraged to complete for success in the upcoming year. Students are expected to have mastered these topics, and they will not be retaught in the subsequent year. Students will have an opportunity to come ask questions during the first few weeks of school. See you in September! Have a wonderful summer!**

*Have a wonderful summer!*

1) a. Complete the rate table.

|                     |    |   |   |   |
|---------------------|----|---|---|---|
| Ounces of Spaghetti | 12 | 6 | 3 | 1 |
| Ounces of Tomatoes  | 16 | 8 |   |   |

b. What is the unit rate comparing 1 ounce of tomatoes to the number of ounces of spaghetti?

2) The ratio of males to total students in a mathematics class is 12 to 30. What fraction of the class is female? What percent is female?

3) Joe bought new sneakers. They were on sale for 20% off. If Joe saved \$16, how much did the sneakers cost originally?

4) Jessica ate  $\frac{3}{8}$  of a pizza. Write how much of the pizza was left over as a decimal and a percent.

5) Samantha put 275% of her effort into her math work this summer. Write the amount of effort she put into her math work as a simplified fraction and a decimal.

6) Kevin needs .024 more points to reach 1000 points in a game. Write the number of points he needs as a simplified fraction and a percent.

7) Sarah can jog at a steady pace of 4.75 miles per hour, and Tony can jog at a steady pace of 4.25 miles per hour.

a. How many miles can Sarah jog in 30 minutes? Show/explain your reasoning.

b. How many miles can Tony jog in 30 minutes?

c. If Sarah and Tony jog for 45 minutes, how much farther will Sarah go than Tony? Explain your reasoning.

8) Compare the fractions in each pair. Insert the correct sign:  $<$ ,  $>$ , or  $=$ . Show/explain your reasoning.

a.  $-\frac{2}{4}$

$-\frac{7}{12}$

b.  $-\frac{5}{8}$

$-\frac{6}{10}$

c.  $\frac{20}{12}$

$\frac{25}{15}$

d.  $\frac{3}{8}$

$\frac{3}{12}$

9) In each group of fractions, rewrite the fractions in order from least to greatest. Show/explain your reasoning

a.  $1\frac{7}{10}, 1\frac{15}{18}, \frac{24}{15}$   
 $\frac{24}{4}, \frac{1}{3}, \frac{12}{11}, \frac{2}{5}$

b.  $\frac{2}{3}, \frac{1}{2}, \frac{3}{4}, \frac{2}{6}$

c.  $\frac{1}{2}, \frac{1}{5}, \frac{1}{3}, \frac{1}{9}, \frac{1}{6}$

d.

Evaluate each expression. Show all work! Make sure you simplify your answer (Can be improper fractions or mixed numbers)

10)  $3\frac{1}{8} + 5\frac{5}{6}$

11)  $4\frac{2}{3} \div 1\frac{5}{9}$

12)  $12 - 3\frac{5}{7}$

13)  $13\frac{1}{2} \cdot 1\frac{1}{15}$

14)  $4\frac{2}{6} + 3\frac{1}{9} + 2\frac{2}{3}$

15)  $4 - 1\frac{1}{3} \cdot 1\frac{1}{4} + \frac{11}{6}$

16) Johnny is making pizzas. He has  $1\frac{5}{6}$  cups of mozzarella cheese. If he uses  $\frac{2}{3}$  of a cup of cheese to make 1 pizza, how many pizzas can he make? Explain your reasoning.

17) Luke is also making pizzas. He started with  $4\frac{1}{2}$  cups of pepperoni. He has used  $\frac{2}{3}$  of his pepperoni. How many cups of pepperoni has he used so far? Explain your reasoning.

18) Which expressions are equivalent to  $3(x + 5)$ ? Choose all that apply. Show/explain how you determine each answer.

A.  $3x + 5$

B.  $3x + 15$

C.  $2x + x + 5 + 10$

D.  $2(x + 5) + (x + 5)$

19) Which expressions are equivalent to  $\frac{x}{4}$ ? Choose all that apply. Show/explain how you determine each answer.

A.  $x - 4$

B.  $\frac{1}{4}x$

C.  $x \div 4$

D.  $4 \div x$

E.  $x + x + x + x$

20) Sammy's mother bought  $2\frac{1}{2}$  pounds of blueberries on Monday. Sammy ate  $\frac{1}{4}$  of the blueberries before he went to bed.

a. How many pounds of blueberries did Sammy eat on Monday?

b. How many pounds of blueberries were left?

c. On Tuesday, Sammy ate  $\frac{1}{3}$  of the remaining blueberries. How many pounds of blueberries did Sammy eat on Tuesday?

d. Did Sammy eat more blueberries on Monday or Tuesday? Explain your reasoning.

e. Sammy's mother also bought  $3\frac{1}{3}$  pounds of strawberries to make strawberry smoothies. She estimates that she will need  $\frac{1}{9}$  of a pound of strawberries for each smoothie. How many smoothies can she make with the strawberries she bought?

21) Simplify each expression (Hint: combine all like terms)

a.  $3x + 2x - 3$

b.  $-2x + 4x - 5$

c.  $12 + 4 - 10x$

22) Fill in the table below, using the distributive property

| Factored form | Expanded Form |
|---------------|---------------|
| $4(x - 3)$    | $4x - 12$     |
| $5(x + 4)$    |               |
|               | $2x - 8$      |
| $-6(x + 2)$   |               |
|               | $10x^2 + 15x$ |
| $-3(x - 7)$   |               |

23) The tour operators thought it would be a good idea to get a souvenir t-shirt for each customer who went on the Ocean Bike Tour. They found a company who would sell them shirts with their logo for \$6.

a. Make a table and a graph that show number of shirts and cost from 0 to 7 shirts. (Don't forget to label!)

|                  |  |  |  |  |  |  |  |  |
|------------------|--|--|--|--|--|--|--|--|
| Number of Shirts |  |  |  |  |  |  |  |  |
| Cost (\$)        |  |  |  |  |  |  |  |  |

b. Write an equation that shows how to determine the t-shirt cost,  $C$ , for any number of customers,  $n$ .

$C =$  \_\_\_\_\_



c. How many shirts can the company buy if their total cost is \$100? Use your equation to solve. Show all work.

**Solve the equation. Must show all work**

The first one is done for you. Use this as an example!

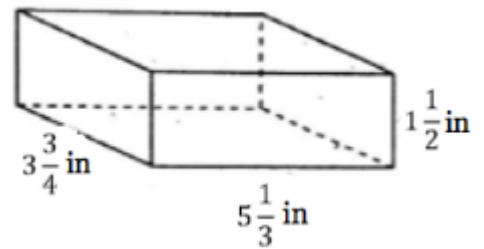
|  |  |   |   |
|--|--|---|---|
| <p>Example:</p> $\begin{array}{r} 5x - 3 = 12 \\ + 3 \quad +3 \\ \hline 5x = 15 \\ 5 \quad 5 \\ x = 3 \end{array}$ | <p>24) <math>4 + x = -9</math></p>                 | <p>25) <math>\frac{3}{4}x = 2\frac{1}{3}</math></p> | <p>26) <math>x - \frac{3}{5} = \frac{1}{2}</math></p> |
| <p>27) <math>x + 5.5 = 7.2</math></p>  | <p>28) <math>\frac{2}{7}x = \frac{2}{3}</math></p> | <p>29) <math>28 = 2x + 4</math></p>                 | <p>30) <math>6x - 12 = 48</math></p>                  |

31) Describe the error made in solving each equation

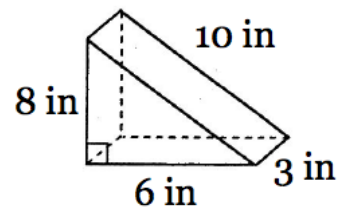
| Equation   | Describe Error |
|--|----------------|
| <p><math>7 - 3x = 12</math></p> $\begin{array}{r} 4x = 12 \\ \frac{4x}{4} = \frac{12}{4} \\ x = 3 \end{array}$ |                |
| <p><math>2x + 4 = 12</math></p>  |                |

|  |  |
|--|--|
| $\begin{array}{r} \overline{\overline{x}} + \overline{\overline{x}} \\ x+4=6 \\ \underline{-4-4} \\ x=2 \end{array}$ |  |
| $\begin{array}{r} 4x + 6 = 26 \\ \underline{+6 +6} \\ 4x = 32 \\ \underline{4 \quad 4} \\ x = 8 \end{array}$         |  |

32) Find the surface area and volume of the rectangular prism



33) Find the surface area of the triangular prism. (**Hint:** Find the area of all the sides and add them together).



For #34 - 37, translate each sentence into an equation. **\*You do not need to solve them\***

34) The cost in dollars is equal to 16 times the number of people. Write an equation relating the total cost,  $C$  to the number of people,  $n$ .

$$C = \underline{\hspace{10em}}$$

35) 40 miles per hour for a given number of hours must equal the total miles. Write an equation relating the number of hours,  $h$ , it will take to go,  $m$ , total miles.

$$m = \underline{\hspace{10em}}$$

36) Sales tax is 7% of the total purchase. Write an equation relating the sales tax,  $t$ , and the total purchase,  $p$ .

$$t = \underline{\hspace{10em}}$$

37) Deanna has \$150 in her account. At the end of each week, she plans to take \$15 out of her account for her spending money. Write an equation to show the relationship between the number of weeks,  $w$ , and the balance in the account,  $A$ .

$$A = \underline{\hspace{10em}}$$

38) Dee owns a game system. He checked some stores to find the least expensive place to buy games.

- Taylor's Department Store sells games for \$16 each.
- Buyer's Warehouse has an initial \$25 membership fee. Then, each game is \$12.

Write an equation relating the cost,  $C$ , for any number of games,  $n$ , at each store.

Taylor's Department Store:  $\underline{\hspace{10em}}$       Buyer's Warehouse:  $\underline{\hspace{10em}}$

Evaluate each expression. Show all work! (Can model use pictures if that is helpful)

39)  $-8 - (-5)$

40)  $12 - 18$

41)  $-(-4) + 8$

42)  $10 - (-4)$

43)  $18 - (-20)$

44)  $\frac{-36}{12}$

45)  $\frac{-4}{-4}$

46)  $-7 - 12$

47)  $13 - (-9)$

48)  $-12(5)$

49)  $-5 \cdot (-6)$

50)  $\frac{-48}{-8}$

Evaluate each expression. Show all work!



$$51) 30 - 3(15 - 12)^2$$

$$52) 5[6 + 4 - 8]^3 - 12$$

$$53) 3(4 + 7) - 4^2$$

$$54) 6 + 4(7 - 4) \div 6$$