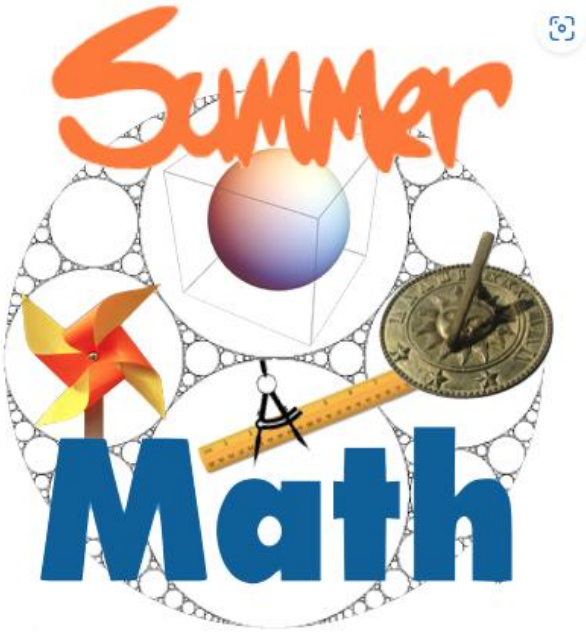
BRIDGEPORT PUBLIC SCHOOLS

MATHEMATICS DEPARTMENT



MATHEMATICS SUMMER PACKETS

End of Grade 7 Entering Grade 8

STUDENT NAME: _____

SCHOOL: _____

rev. 4/25/25

Dear Future 8th Grader,

Success in 8th Grade Mathematics begins with a solid foundation in the skills and concepts you learned in 7th Grade and elementary school. These are essential for understanding new topics and solving both mathematical and real-world problems.

This summer, we encourage you to review and strengthen these foundational skills. The provided packet includes key practice problems and links to online resources. Work on a few problems each day, use the resources if needed, and don't hesitate to seek help from friends, family, or additional tools.

Your completed packet is due when you return in August. Teachers will review these prerequisite skills and assess your understanding early in the school year. Learning math is like building a house—strong foundations are critical for growth. Strengthening these basics now will set you up for success.

We hope you not only excel in math but also enjoy discovering its beauty. Have a wonderful summer, and come back in the fall ready to aim high and believe in your potential!

Decimal Operations

1. $9.372 + 3.029$

2. $11.322 - 3.825$

3. $18.23 - 5.409 + 2.55$

4. $2.35 * 7.11$

5. $1.023 * 3.5$

6. $23.25 \div 0.7$

7. $0.54723 \div 2$

8. $8.752 \div 0.12$

For #9-12 simplify the fraction by finding common factors & eliminating them.

9. $\frac{4}{10}$

10. $\frac{24}{40}$

11. $\frac{81}{27}$

12. $\frac{9}{21}$

For #13-16, simplify each answer as much as possible by cross cancelling factors.

13. $\frac{4}{5} * \frac{10}{18}$

14. $\frac{8}{9} * \frac{3}{4} * \frac{10}{6} * \frac{12}{15}$

15. $\frac{27}{38} \div \frac{3}{7}$

16. $\frac{35}{38} \div \frac{5}{19}$

Order of Operations

Simplify each expression using PEMDAS!

1) $2 * 6 \div 4 + 7 - 8 * 3 + 77 \div 11$

2) $72 \div 12 + 2^2 - 5 * 2 + 3 + 2 * (6 - 5)$

3) $7 * (12 - 5) + 9 \div (-3) + 7 * (-2)$

4) $13 + 2x - 5 - 8x + 7 * (4x + 1)$

5) $-5x - 8 + (8 \div 2) + 7 * 6$

6) $3x - 6 + 4 * 8 - 3x + 2y - 90 \div 5$

Absolute Values & Negative Integer Operations

Simplify each statement as much as possible.

1. $|-4|$
2. $-|-5|$
3. $(-3)^2$
4. -5^3

5. $-4 * 5$
6. $-7 + 3$
7. $-8 * -7$
8. $-28 \div -7$

9. $-42 + 27$
10. $-22 - (-8)$
11. $\frac{-42}{7}$
12. $37 - 83$

13. $-42 \div 2 + (7 * 3) + 8 - (-5) - 4 * 2$

14. $|-2| + 8^2 - (-3)^2 + 7 * 2 - 22 \div 2$

15. $|-4^3| - 8 * 7 + (-(-(-2) + \left(-\frac{48}{6}\right) + (-3) * (-2)$

Operations with Fractions

Reduce answers as much possible by finding common factors.

#1. $\frac{2}{5}+\frac{3}{7}$

#2. $\frac{4}{28}-\frac{7}{9}$

#3. $3\frac{1}{3}+4\frac{7}{8}$

#4. $-\frac{7}{25}-\frac{8}{15}$

#5. $\frac{2}{25}*\frac{15}{22}$

#6. $\frac{27}{31}*-\frac{62}{81}$

#7. $-\frac{10}{21}*-\frac{49}{35}$

#8. $4\frac{1}{3}*5\frac{2}{5}$

#9. $-\frac{42}{55}\div\frac{28}{11}$

#10. $\frac{25}{28}\div\frac{15}{32}$

#11. $-\frac{8}{5}\div\frac{6}{35}$

#12. $\frac{125}{128}\div\frac{65}{72}$

13. You have $8\frac{4}{5}$ total cups of lemonade, and you want to share it with your friends. Each friend gets $\frac{1}{10}$ of a cup to drink.
How many friends do you have?

14. You have $10\frac{2}{7}$ ounces of candle wax to make an army of tiny, beautiful-smelling candles. You are able to make a total of 12 candles from the wax. How much wax is in each candle? (Hint: write an equation first.)

Exponents & Expressions

For #1-4, rewrite as multiplication problems, then solve.

#1. $(-5)^4$ **#2.** $\left(\frac{1}{2}\right)^3$ **#3.** -4^2 **#4.** $\left(-\frac{2}{3}\right)^3$

For #5-7, rewrite as exponents, and solve.

#5. $2 * 2 * 2$ **#6.** $(\frac{1}{4} * \frac{1}{4})$ **#7.** $-1 * -1 * -1 * -1 * -1 * -1 * -1$

Simplify the expression by combining terms.

#8. $-2(x-3)+4x$ **#9.** $4x-1(6+2x)$ **#10.** $4x-3+6z+7-10x$

#11. $(6a+3x)-(4a-7x)$ **#12.** $(-4y-8x)+(7y+10x)$

#13. $(5x-2a)-(-4x+7a)$ **#14.** $(15x-3y)+(-12x-y)$

Find the greatest common factor of the following terms.

#15. 84, 128 #16. $147x$, $105x^2$ #17. 216, 288, 72

Solving Equations

Solve each equation for the variable.

#1. $2x + 6 = 8$

#2. $-4(x - 2) = 16$

#3. $\frac{x+7}{3} = 12$

#4. $\frac{5x-3}{2} = 11$

#5. $-3x - 7 = x + 9$

#6. $4(2x + 6) = 16x + 8$

#7. $2(x - 4) = 22$

#8. $-5x = 35$

#9. $\frac{x}{4} + 3 = 7$

#10. $-\frac{2x}{5} = 10$

#11. $-\frac{x-5}{2} = 11$

#12. $\frac{2x+1}{2} = 3x$

Factor out any common factors from each expression.

#13. $81x + 27$

#14. $3x - 9$

#15 $-48 - 64x$

Inequalities

For #1-2, write a sentence that represents the inequality.

#1. $x < 7$ **#2.** $x \geq -4$

For #3-4, tell if the given number makes the inequality TRUE or FALSE.

#3. $2x < 10, \text{value} = -3$ **#4.** $\frac{x+7}{6} \geq -5, value = 5$

Solve the inequalities, showing each step. Then graph the solutions.

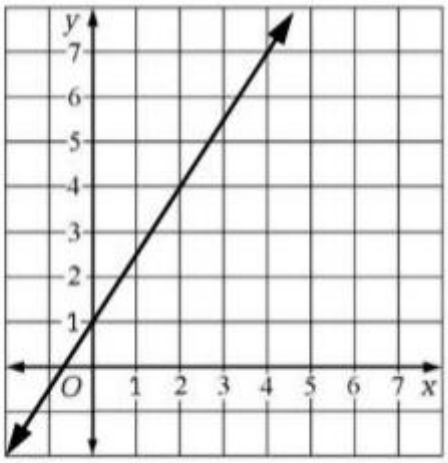
#5. $x + 7 \leq -2$ **#6.** $\frac{3}{5}x > 9$ **#7.** $7 - 2x \geq 5$

#8. $-x - 8 < 3$ **#9.** $-\frac{5}{6}x \geq 15$ **#10.** $2x - 5 > 3x + 6$

#11. $3x - 8 < 3x + 7$ **#12.** $3x + 7 > 4$ **#13.** $-2x + 7 < 9x - 2$

Coordinate Plane & Unit Rates

For #1-3, use the graph given to answer the questions.



#1. When $x = -2$, what is Y?

#2. When $y = 4$, what is X?

#3. When $x = 4$, what is Y?

For #4-6, use the equation $y = -3x + 2$ to find the value of y at the given x values.

#4. $x = 3$ **#5.** $x = -\frac{5}{3}$ **#6.** $x = 0$ **#7.** $x = -4$

For #7-10, write the ratio as a fraction in its <u>simplest</u> form (reduce!).

#8. 56 to 77 **#9.** 144 to 84 **#10.** 15 to 45 **#11.** 36 : 108

Find the unit rate [by making the denominator 1].

#12. $\frac{28\ megabytes}{5\ seconds}$ **#13.** $\frac{45\ cups\ of\ coffee}{4\ days}$ **#14.** $\frac{28\ detentions}{9\ days}$

Decimals, Fractions, Percents

1. Write 0.42 as a fraction.

2. Write $\frac{7}{35}$ as a decimal.

3. Write 74% as a fraction.

4. Write 0.5732 as a percent.

5. Write $\frac{3}{11}$ as a percent.

6. Write $\frac{6}{25}$ as a percent.

For #7-12, turn the sentences into equations, and solve.

7. What number is 37% of 7?

8. 22% of 45 is what number?

9. 7 is 37% of what number?

10. What is 212% of 3?

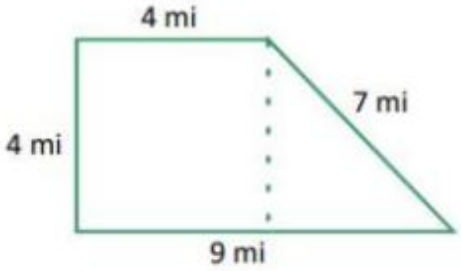
11. 0.15% of 3,034 is what number?

12. 6 is 8% of what number?

Area, Perimeter, and Circumference

1. A circle has a radius of 3 inches. A) What is the diameter? B) What is the area of the circle? C) What is the circumference of the circle?

2. A circle has a diameter of 8 meters. A) What is the radius? B) What is the area of the circle? C) What is the circumference of the circle?



3. What is the perimeter of the figure to the right?

4. What is the area of the figure to the right?

5. What is the area of a parallelogram with a base of **9 inches** and a height of 7.62 **centimeters?**

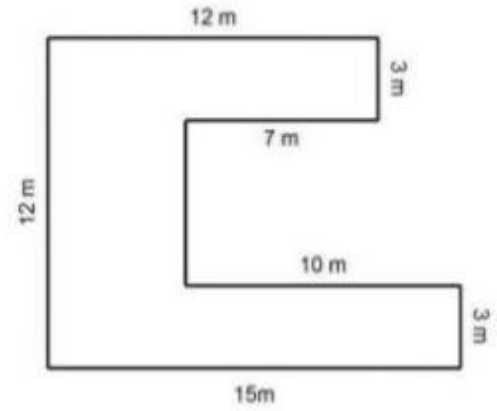
6. The area of a rectangle is 58 in^2. The base is 8 inches long. What is the height?

7. A circle has a circumference of 14π inches. What is the diameter of the circle?

8. A triangle has an area of 160 mi^2, and a base of 20 miles. What is the height?

9. What is the area of a triangle that has a base of 8 meters and a height of 7 meters?

10. A circle has an area of $49\pi\ m^2$. What is the radius of the circle?



11. Find the perimeter of the shape to the left.

12. Find the area of the shape to the left.