Monroe Township Middle School

Monroe Township, New Jersey

Entering 8TH GRADE RESOURCE CLASS MATHEMATICS

Summer Preparation Packet 2025-2026

Welcome to 8th Grade Mathematics! Our 8th Grade Mathematics Course is a comprehensive survey course that will provide you with the fundamental tools of mathematical understanding that will support you in all your high school courses. This preparation packet contains review material of the 7th grade concepts, skills, and procedures that should be mastered **BEFORE** entering 8th grade in the fall. Essentially, this packet provides a review of the **major** 7th grade topics as well as a **preview** of 8th grade topics. The sections are based on the New Jersey Student Learning Standards.

This collection of problems will identify those concepts that you have mastered as well as those you will need to practice and review. **You are expected to seek extra help with concepts that you have not demonstrated proficiency in.** Be resourceful – use online resources!

Here are some websites you might find particularly useful:

- http://www.khanacademy.org/
- http://www.studyisland.com/web/index/
- http://www.ixl.com/math/

You will be responsible for handing in the completed packet with all work shown ON THE FIRST DAY OF SCHOOL. These problems are a good review of the skills that you should have learned **BEFORE** 8th Grade Math and will help you best prepare for your 8th grade math course. We strongly encourage you include this packet in your summer festivities. Good luck and enjoy your summer! ☺

*****BE SURE TO SHOW ALL WORK FOR FULL CREDIT!*****

MATH 8 PREPARATION PACKET SCORE: _____

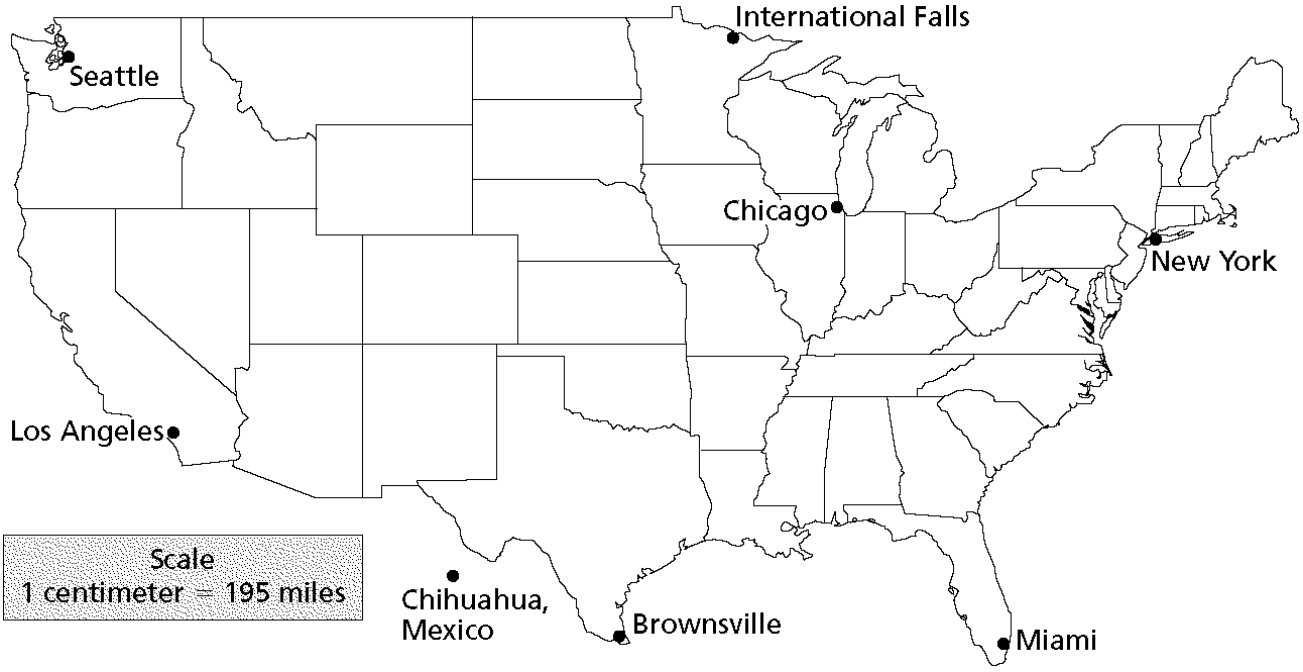
Ratios and Proportional Relationships

The table shows the numbers of hours Melissa works and the amounts that she earns **Use the table below for #1.**

Melissa's Earnings					
Hours Worked	2	4	7	8	10
Earnings (in $)	44	88	154	176	220

1. Is the relationship between time and earnings **proportional**? Explain why or why not. (hint: find the rate using a proportion $\frac{\$}{hours}$)

(For #2) Use the map below.



2. The distance on this map from Chicago to New York is about **4 cm**. What would be the approximate distance (in miles) to travel from Chicago to New York in real-life? Use the scale to help you. *(Hint: Set up a proportion* $\frac{cm}{miles}$ *or multiply)*

3. If David walks 0.5 miles in 0.25 hours, then how fast will David walk in one full hour? In other words, what is David's "**unit rate**"?
   (Hint: Set up a proportion $\frac{Miles}{Hours}$*)*

4. A sweater originally priced at $44 is marked down 25%. What is the **sale price**?

The Number System

5. Fill in the missing fraction/decimal/percent conversions below.

FRACTION	DECIMAL	PERCENT
	0.12	
$\frac{7}{8}$		
		125%

Fraction → Decimal: divide top by bottom

Decimal → Fraction: put over place value & reduce

Decimal → percent: move the decimal 2 times right

Percent → Decimal: move the decimal 2 times left

6. Find the **sum** or **difference**. You MUST show ALL of your work to receive credit! *(Hint: Find common denominators)*

$\frac{5}{16}+\frac{3}{4}$	$5\frac{3}{8}-1\frac{5}{16}$

7. Find the **quotient** or **product**. You MUST show ALL of your work to receive credit! *(keep, switch, flip for division)*

$\frac{9}{5}\bullet\frac{20}{1}$	$\frac{1}{2}\div\frac{3}{4}$

8. Simplify and show all steps of work: ***(use PEMDAS)***

$$\mathbf{10 - [50 \div (-2 \times 25) + 7] \times 2^2}$$

Expressions & Equations

9. Felicia is planning a white-water rafting trip. She compares two companies to find the better buy. ***(use the idea that cost= $ per hour + one-time fee)***

    a. Sinking Rivers charges two hundred dollars for insurance and fifteen dollars an hour to rent the raft. Write an equation to represent Sinking Rivers' total cost (c) for any number of hours (h).

    c = _____

    b. Floating Down the Stream charges thirty dollars an hour and one hundred and ten dollars for insurance. Write an equation to represent Floating Down the Stream's total cost (c) for any number of hours (h).

    c = _____

    c. Find which company would be the better buy **for 3 hours.**

Sinking Rivers	Floating Down the Stream
Company with the better buy:_____	

10. Solve the following one and two-step equations:
*(hint: do the OPPOSITE operation, **for two-step:** add/subtract then divide)*

Equation	**Check:**
$\mathbf{4x = 120}$	
$\mathbf{x - 9 = 37}$	
$\mathbf{2x + 16 = 80}$	

11. Use the **distributive property to write an equivalent expression for:**

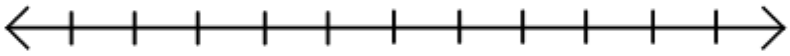
$$-3(2x-5)$$

12. **Combine like- terms** to simplify the following:

$2m+1.5\,\mathrm{m}$	3x+2x+6

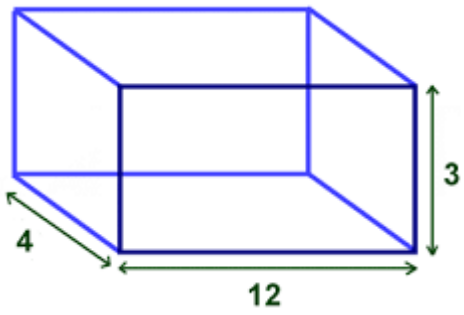
13. **Solve** and **graph** the inequality below:

$5x + 460 \geq 1{,}000$



Geometry

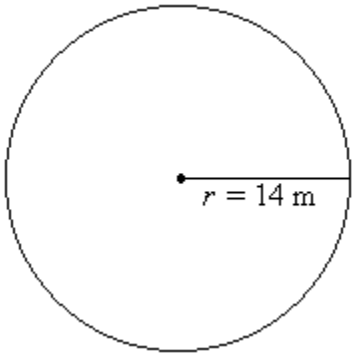
14. What is the **VOLUME** of the cube? formula: $V = l \times w \times h$



15. Find the **area** and **circumference** of the circle below.

Area= πr^2

Circumference = $2\pi r$

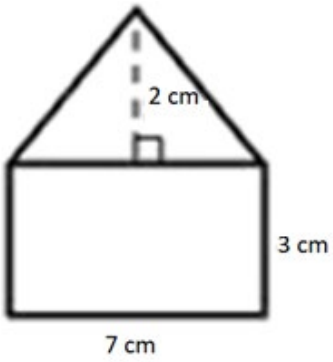


Area= _____

Circumference =_____

16. Find the area of the figure below.

Area of triangle = $\frac{bh}{2}$
Area of rectangle= bh

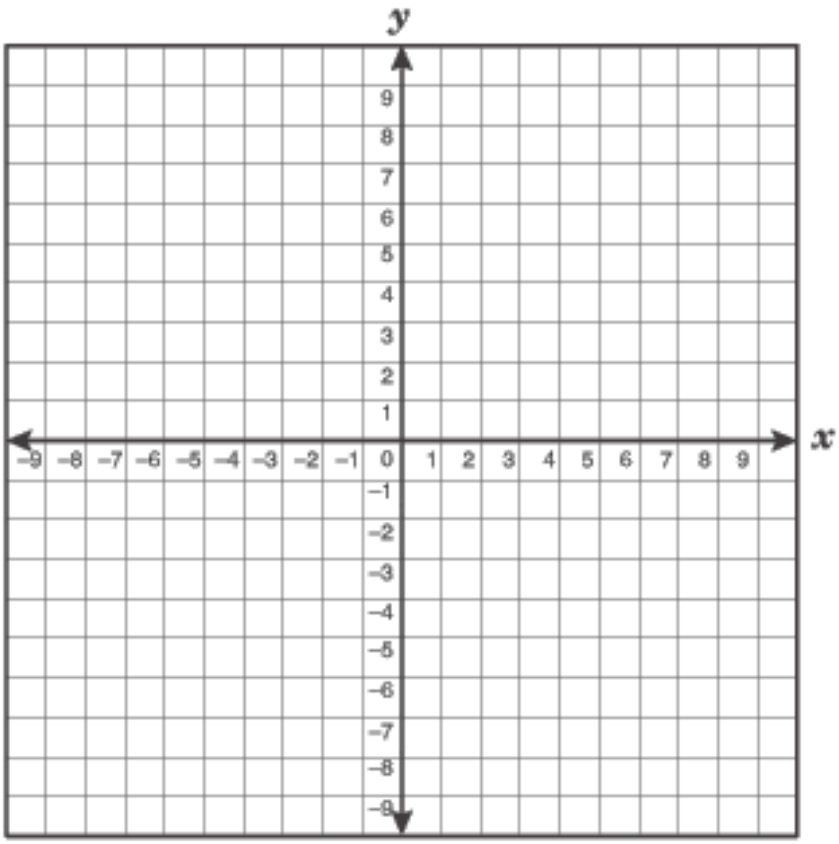


17. **<u>Illustrate</u>** each of the following terms by providing clear examples *(draw)*.

Supplementary angles	Vertical angles
Complementary angles	Adjacent angles

18. Below is a grid with four quadrants. **Plot the following points**, and connect them with line segments.

Point *A* (-2, -4) Point *B* (3, 4) Point *C* (3, -4)



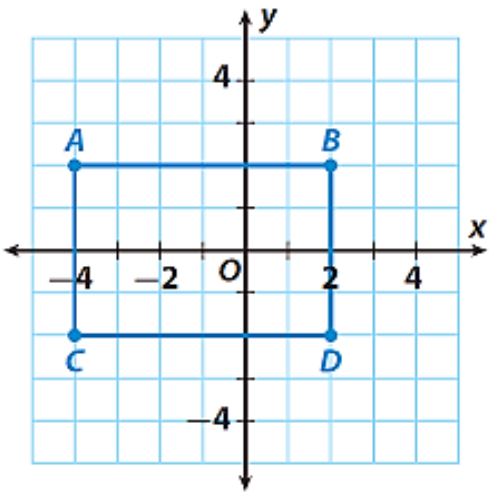
19. Find the coordinates of the rectangle.

A ( )

B ( )

C ( )

D ( )



Statistics and Probability

20. Each letter of the word "MATHEMATICS" is written on a separate slip of paper and placed in a hat. A letter is chosen at random from the hat. *(HINT: can be fraction, percent or decimal)*

    a. What is the probability of choosing "M" on your first try?

    b. What is the probability of choosing "S" on your second try?

Match the following terms to their corresponding definition:

21. _____Probability

22. _____Range

23. _____Mean

24. _____ Median

25. _____Mode

A. The middle number of an ordered set of numbers. If there is an even number in the set, then it is the average of the two middle values.

B. The "average" of a set of numbers – the sum of the set divided by the number in the set.

C. A number between 0 and 1 that describes the likelihood that an outcome will occur.

D. The most frequently occurring value in a numerical set.

E. The difference between the highest value and lowest value in a data set