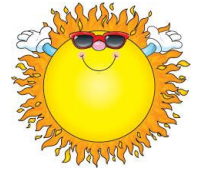




CPS Mathematics Department

Summer Math Learning Packet

for students entering Grade 7



The daily activities in this summer math packet will review math concepts and skills. Just a few minutes each day spent “thinking and talking math” will help reinforce the math that has been learned and begin to bridge the foundation for extending to the concepts that will be developed next year. The goal is for you to have fun thinking and working collaboratively to communicate mathematical ideas. While you are working ask how the solution was found and why a particular strategy was chosen.

The math activities in this math packet address the new Massachusetts Curriculum Framework for Mathematics which incorporates the Common Core Standards within these 4 critical areas in grade 7:

- (1) connecting ratio and rate to whole number multiplication and division, and using concepts of ratio and rate to solve problems**
- (2) completing understanding of division of fractions and extending the notion of number to the system of rational numbers, which includes negative numbers**
- (3) writing, interpreting, and using expressions and equations**
- (4) developing understanding of statistical thinking.**
- (5) Reasoning about geometric shapes and their measurements, finding lengths of side and area of plane figures, and surface area and volumes of 3-dimensional shapes.**

The packet consists of a week by week ‘menu of math’, as well as directions for math games that can be played at home. Literature, worksheets, APPs and websites are also recommended. The intention is that you spend 10 minutes a day on the activities.

Directions: Each week has five activities for you to complete. You may complete the activities in any order. Choose one activity to do each day, and then write about that activity in your math journal.

I, _____, have spent _____ minutes this summer engaging in thinking and talking about math.

Scholars Name: _____


Parent/Guardian’s Signature: _____ Date: _____

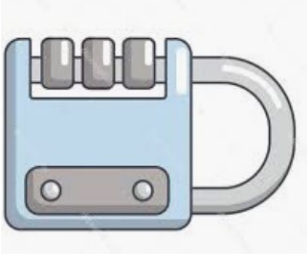
Week 1

<p><u>Day 1</u></p> <p>If it took 7 hours to mow 4 lawns, then, at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?</p>	<p><u>Day 2</u></p> <p>What is the prime factorization of 32?</p>	<p><u>Day 3</u></p> <p>Some kids like to ride their bikes to and from school. Let d be the distance in miles from a kid's home to school. Write 2 expressions to represent how far a kid travels by bike in 4 weeks.</p>	<p><u>Day 4</u></p> <p>List all the factors of 48. List all the factors of 64. What are the common factors of 48 and 64? What is the greatest common factor of 48 and 64?</p>
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Day 5
CRACK THE CODE: Use the numbers and clues below to determine the correct 3 digit combination.

682	One number is correct and in the correct position		206	Two numbers correct but both in wrong positions
645	One number correct but in the wrong position		786	Nothing is correct





Week 2

<p><u>Day 1</u></p> <p>Write an expression to represent the situation. The skating rink charges \$100 to reserve and then \$5 per person. Write an expression to represent the cost for n people.</p>	<p><u>Day 2</u></p> <p>The temperature is -28°F in Anchorage, Alaska and 65°F in Miami, Florida. How many degrees warmer is it in Miami than in Anchorage?</p>	<p><u>Day 3</u></p> <p>Seth wants to buy a new skateboard that costs \$167. He has \$88. If he earns \$7.25 an hour pulling weeds, how many hours will he have to work to earn the rest of the money needed?</p>	<p><u>Day 4</u></p> <p>Lin rode a bike 20 miles in 150 minutes. If she rode at a constant speed, how far did she ride in 15 minutes? How long did it take her to ride 6 miles?</p>
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Day 5
GUESS MY NUMBER

I am a multiple of 10. I am greater than 4 squared. I am less than 5 squared. What is my number?

Week 3

Day 1

Alisa had $\frac{1}{2}$ liter of juice in a bottle. She drank $\frac{3}{8}$ liters of juice. What fraction of the juice in the bottle did Alisa drink?

Day 2

The temperature in Alaska was 23 degrees below zero and in Maine was 14 degrees below zero. Ben wrote *Maine was colder because $-14 < -23$* . Is Ben correct? Explain your answer.

Day 3

If the mean, median, and mode are all equal for the following set, what is the value of x? $\{3,4,5,8,x\}$

Day 4

What is the smallest number that is divisible by 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10? How do you know?

Day 5

\$100 is split with Al, Bob, Cindi, And Dina. Bob gets \$4 more than Al. Cindid gets \$8 more than Bob. Dina gets twice as much as Cindi. How much does each person get?



Week 4

Day 1

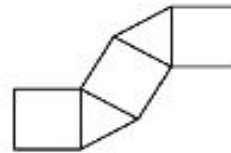
Mia walks her dog twice a day. Her evening walk is two and a half times as far as her morning walk. At the end of the week she says she walked her dog 30 miles. How long is her morning walk?

Day 2

Find two numbers that have 2,3, and 5 as factors.

Day 3

Will the net to the right form a triangular prism?



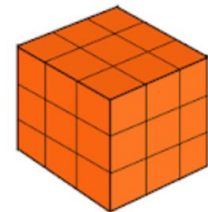
Day 4

In trail mix, the ratio of cups of peanuts to cups of chocolate candies is 3 to 2. How many cups of chocolate candies would be needed for 9 cups of peanuts?

Day 5

PAINTED CUBE

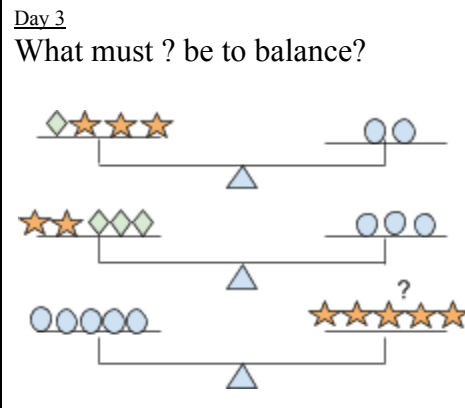
A cube is made up from 27 small white cubes. The large cube was dipped in a pot of orange paint so that the whole of the outside is covered in paint. If the cube is broken into its small cubes, what colors would the small cubes be?



Week 5

Day 1
Denver’s elevation is 5,280 feet above sea level. Death Valley’s is −282 feet. Is Death Valley located above or below sea level? Explain. How many feet higher is Denver than Death Valley?

Day 2
Amy has a fish tank that is a rectangular prism, 20 cm by 20 cm by 16 cm. What is the volume of the tank? If Amy only fills the tank 3/4 of the way, what will be the volume of the water in the tank?



Day 4
The Patriots beat the Giants in a football game. The sum of their scores was 44. The difference of their scores was 20. How many points did the Patriots score?

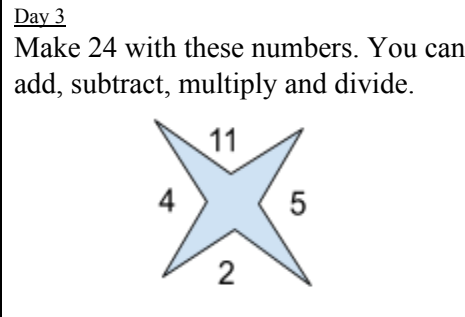
Day 5
BLUE GREEN: Which mix gives you the bluest green? (Using the following scoops.)

<p><u>Mix A</u> 3 yellow 2 blue</p>	<p><u>Mix B</u> 9 yellow 5 blue</p>	<p><u>Mix C</u> 2 yellow 1 blue</p>	<p><u>Mix D</u> 5 yellow 3 blue</p>
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Week 6

Day 1
Alexis is painting 4 exterior walls of a rectangular barn. The length is 80 feet, width is 50 feet, and height is 30 feet. The paint costs \$28 per gallon, and each gallon covers 420 sq. feet. How much will it cost? Explain.

Day 2
The average of six numbers is 4. A seventh is added and the new average is 5. Find the seventh number.



Day 4
Sophia’s dad paid \$43.25 for 12.5 gallons of gas. What is the cost of one gallon of gas?

Day 5
Use the digits 1 to 9, at most one time each, fill in the boxes to make a product as close to 50 as possible.

$$\square (\square - \square) = \square \square$$

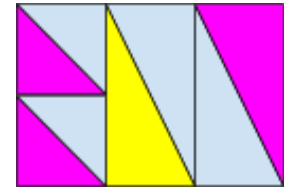
Week 7

Day 1
 What is the largest possible area (in square inches) for a rectangle with a perimeter of 120 inches?

Day 2
 Are $3(3x - y)$ and $12(x - 4y)$ equivalent expressions?

Day 3
 The lowest temperature ever recorded on earth was -89°C in Antarctica. The average temperature on Mars is about -55°C . Which is warmer? Write an inequality to support your answer.

Day 4
 What fraction of space is occupied by each of the 3 colors?



Day 5
MATH OR MAGIC?
 Choose 3 consecutive numbers (in a row like 3,4, and 5). Multiply the largest by the smallest. Square the middle number. Then try with other sets of numbers. Demonstrate how you make sense of this pattern by using repeated addition, arrays, and/or algebra.



Week 8

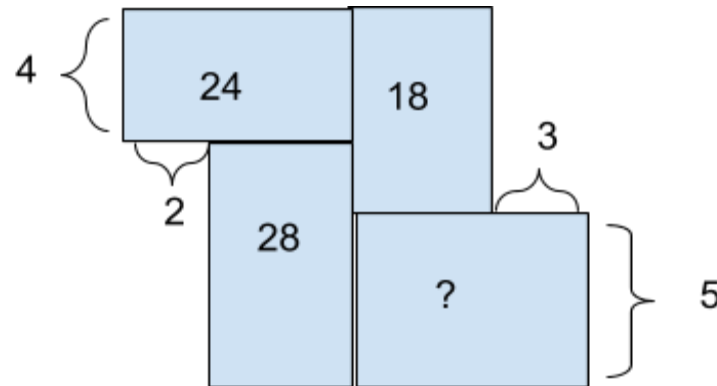
Day 1
 If Terri swam 3 laps in 2.5 minutes, how long would it take her to swim 20 laps at the same rate?

Day 2
 What is the smallest three-digit number that is divisible by exactly three different prime numbers?

Day 3
 What is a real life example of: $\frac{3}{4} \div \frac{1}{2}$

Day 4
 Given an expression such as $3x + 2y$, find the value of the expression when x is equal to 4 and y is equal to 2.4.

Day 5
AREA MAZE
 Find the area of the rectangle with ?. (The maze is not drawn to scale.)



Week 9

Day 1

Find the sum of the first ten prime numbers.

Day 2

What is the value of A, B, C, and D if they are each a different digit?

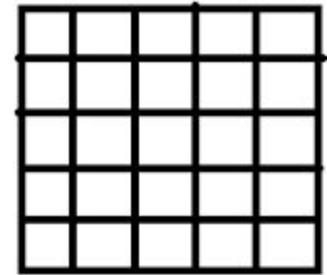
$$\begin{array}{rcccc} A & B & C & D \\ & \times & 4 & \\ \hline D & C & B & A \end{array}$$

Day 3

At Books Unlimited, 3 paperback books cost \$18. What would 7 books cost? How many books could be purchased with \$54?

Day 4

How many squares can you find?

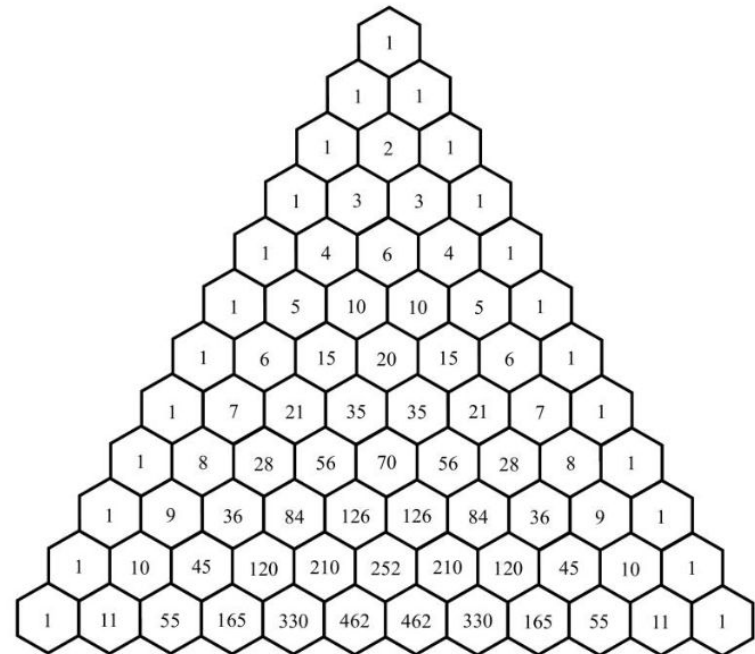


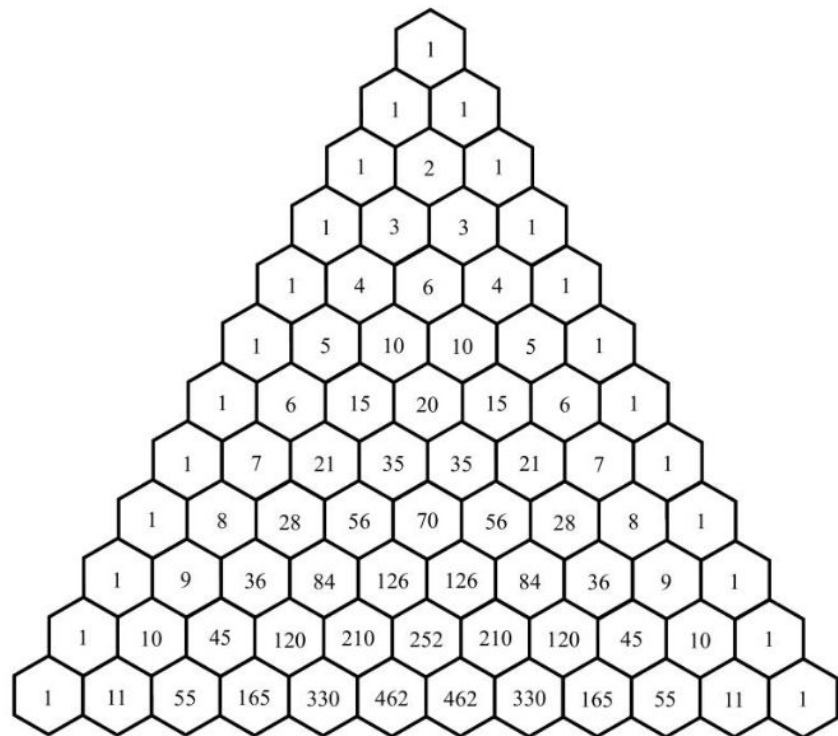
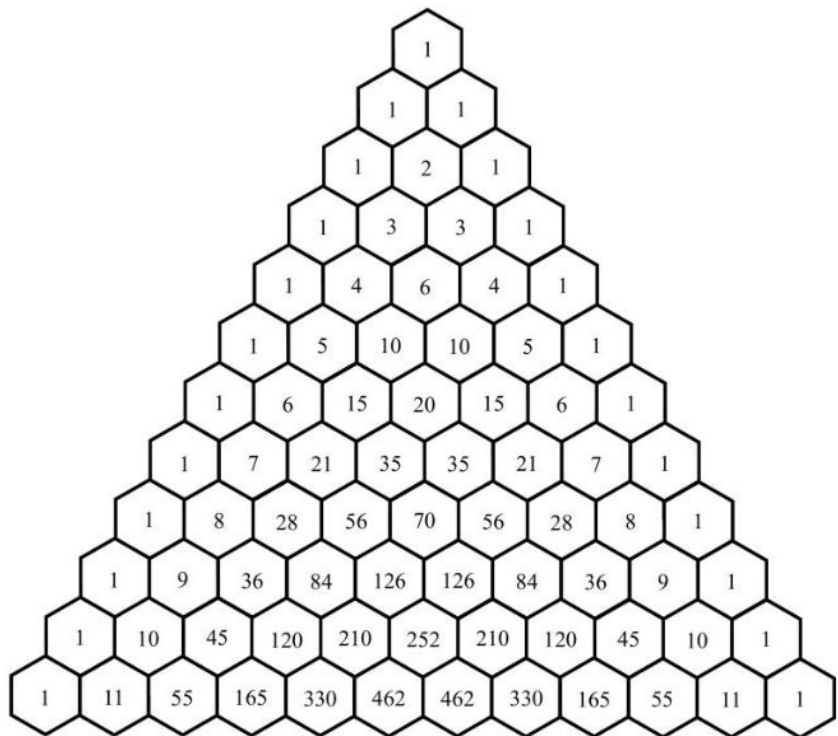
Day 5

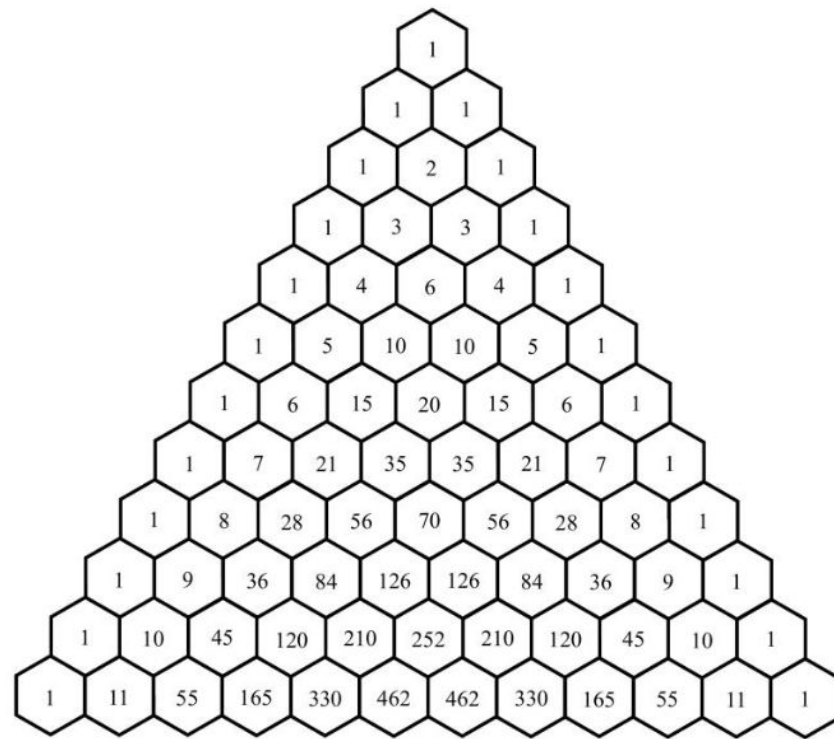
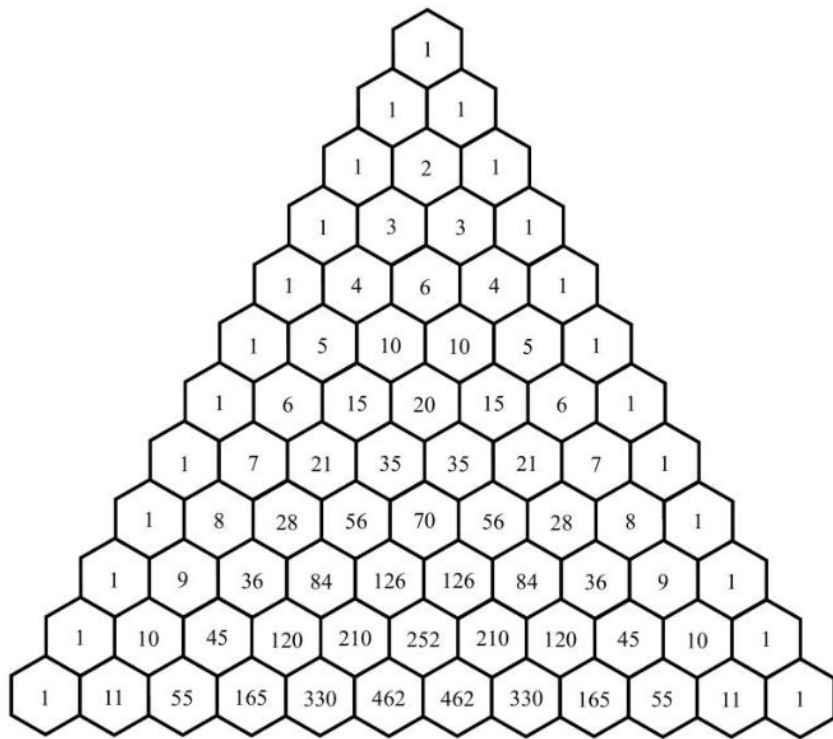
MATH ART CHALLENGE: PASCAL'S TRIANGLE PATTERNS

THE CHALLENGE: Start by making (or use the one to the right) a Pascal's Triangle. Then shade in some pattern of values. On one triangle, shade even and odd numbers. On another triangle, shade multiples of 3 and 4. Choose other types of numbers to shade. How far can you extend the triangle? What patterns do you see?

MATERIALS NEEDED: Pascal's triangle, pencil or color pencils.







YOU DID IT! Please bring your journal to your seventh grade teacher on the first day of school.

Websites to Explore:

Here are websites that you can explore on your own. You also can find some great books to read online using digital resources available through the public library. Record your choices on the sheets provided below.

YouCubed - This website provides a variety of fun problem solving tasks

The Math Forum - The Math Forum includes a wonderful Student Center which allows students to choose resources and grade level material they find challenging or interesting. A help area called Ask Dr. Math, an Internet Math Hunt, and Math Tips & Tricks, which includes “BeatCalc”, are just a few of the wonderful resources.

Cool Math For Kids - This website provides a variety of games that explore probability and “race the clock” which allows you to practice basic computation skills. There are also several IQ games and brain thinkers that foster your ability to think logically.

The Quiz - This website provides math activities listed by concept and skills for all grade levels.

Math Playground - An action-packed site for middle school students to practice math skills, play a logic game and have some fun.

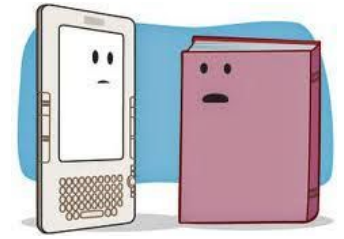
Math Illuminations, National Council of Mathematics - Choose a grade range to access activities and games.

Figure this - This site is designed to challenge middle school students with real world challenges.

Kids.Gov - This website is the official kids’ portal for the U.S. government. It is divided into educational subjects like Arts, Math, and History.

Great Math Books to Read:

- [A Gebra Named Al](#) by Windy Isdell
- [Math Curse](#) by Jon Scieszka
- [Chasing Vermeer](#) by Blue Balliett
- [Sir Cumference & the Dragon of Pi](#) by Cindy Neuschwander
- [Sir Cumference & the First Roundtable](#) by Cindy Neuschwander
- [Sir Cumference & the Great Knight of Angleland](#) by Cindy Neuschwander
- [Sir Cumference & the Sword in the Cone](#) by Cindy Neuschwander
- [Number Devil: A Mathematical Adventure](#) by Hans Magnus Enzensberger
- [Counting on Frank](#) by Rod Clement
- [Guinness Book of Records](#) by Time Inc
- [Mathematicians are People Too](#) by Luetta Reimer & Wilbert Reimer



These resources are intended for you to choose the websites and books that are most interesting to you. Keep in mind that it will be beneficial for you to:

- Solve problems involving addition, subtraction, multiplication, and division of fractions.
- Solve problems involving addition, subtraction, multiplication, and division of decimals.
- Convert fractions, decimals, and percents to find equivalent fractions.
- Solve a variety of problems to strengthen your mathematical skills and knowledge.

APPS to Practice Math!

Here are some free or inexpensive apps on which you can practice your math.

APPS

- Nine Gaps
- Khan Academy
- Math Zombie
- Math Bingo
- Math Hunt
- Symmetry Shuffle
- Kakooma
- Deep sea duel
- Pick a path
- Lobster diver
- Math matrix
- Middle School Math HD

APPS for all Grades

- Fast Math
- Fast Math Challenge HD
- Fraction App by Tap to Learn
- Kakooma
- Math Matrix HD
- Quick Math Game
- PopMath
- iEstimation
- Pick-a-Path
- Sumdog
- Conundra Math

