Summer Math Learning Packet - Students Entering 8th Grade

Discover mathematics all around you this summer! Just as with reading, regular practice over the summer with problem solving, .computation, and math facts will maintain and strengthen the mathematical gains you made over the year.

Attached to this letter, you will find creative mathematics activities to explore at home. The goal is for you to have fun thinking and working collaboratively to communicate mathematical ideas. While you are wokiring, ask how the solution was found and why a particular strategy or "tool" was chosen.

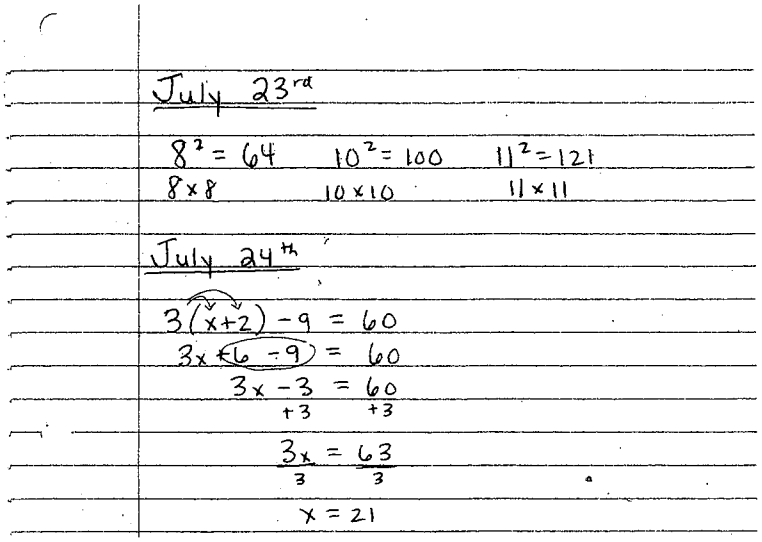
The Summer Math Learning Packet consists of a calendar for July and a calendar for August. There are also literature and website recommendations for other optional ways for you to explore math over the summer.

DIRECTIONS: Do your best to complete the daily math problem/activity. Record your work in a math journal every day (see example below). Please return the calendar and journal the first week of school to get credit for all of your hard work!

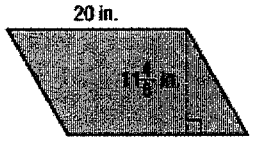
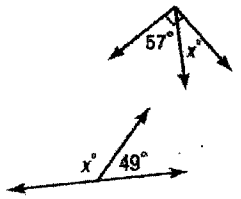
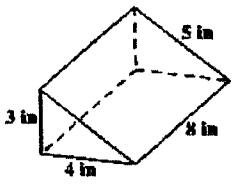
Each journal entry should:

- Have the date
- Have a clear and complete answer for the calendar math problem

Here is an example of a journal entry:



Summer Math Calendar for Students Entering 8th Grade - July

1. Evaluate: $6 + 3b$ if $b = 7$ Evaluate: $\frac{n^2}{3}$ if $n = 9$	2. Perform the operations: 6 + -9 = -2 – 3 = -3 * 4 = 16 ÷ -4 =	3. Write each phrase as an algebraic expression: • 7 less than m • The quotient of 3 and y • 4 years younger than Jessica • 3 times as many marbles as Bob	4. Find the area: 	5. Solve the equations: $x - 9 = -12$ $48 = -6r$	6. Find the value of x for each missing angle. 	7. Fill in the table below using $y = 2+10x$ x | y -2 | 1 | 4 |
8. Use the distributive property to simplify: $3(y + 3)$ $-4(6 - 2x)$ $\frac{1}{2}(6x + 9)$	9. Determine how many combinations of burgers you have at your next cookout if you have 2 types of burger, 2 cheeses, and 6 condiments.	10. Solve the equations: $2t + 7 = -1$ $4t + 3.5 = 11.5$	11. A garden the shape of a triangle has an area of 875 square feet. The garden is 35 feet long. Determine the width of the garden at its widest point.	12. Combine like terms to simplify: $3a + b - 4 + 7a + 5b$ $-x + y + 6x + 4z - 8y$	13. Perform the operations: 16 + -9 = -12 - 3 = -5 * -4 = -18 ÷ -6 =	14. Evaluate: $5(6) - c$ if $c = 7$ Evaluate: ab^3c if $a = 3$, $b = 2$, & $c = 5$
15. Without parentheses the expression $8 + 30 \div 2 + 4$ equals 27. Place parentheses in the expression so it equals 13, then 23.	16. Use the Pythagorean Theorem to find the missing side length. 	17. The time shown on the clock is 11:05. Starting at this time, approximately what time will it be when the hands form an obtuse angle? 	18. Perform the operations: -2 + -9 = 2 – 13 = 3 * -7 = -64 ÷ 4 =	19. Evaluate: $6a^2$ if $a = 4$ Evaluate: $\frac{7.5m}{5}$ if $m = 3$	20. Given a circle with a radius of 7 cm: Find the diameter. Find the circumference. Find the area.	21. Solve the inequality: $5y + 1 \leq 36$ $4x - 6 > 10$
22. Solve the equation: $6a - 10 = 26$ $8 + 8b = 64$	23. Perform the operations: -10 + 9 = 2 – -3 = -4 * 2.5 = 60 ÷ -8 =	24. The lifespan of a zebra is 15 years. The lifespan of a black bear is 3 years longer. Write an equation that you could use to find the lifespan of a black bear.	25. Look up some statistics from your favorite sport or athlete. What is the mean, median, mode, range,	26. Write an inequality for: Five dollars less than two times Chris' pay is at most $124.	27. Determine the surface area and volume for the rectangular prism. 	28. Play a math thinking game like: Yahtzee Mastermind Monopoly Life Tenzi Battleship Dominoes Guess My Number

Summer Math Calendar for Students Entering 8th Grade - August

1. Evaluate:

$(2 + 10)^2 \div 4$

$(6 + 5)(8 - 6)$

2. Perform the operations:

6 + -9 =

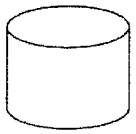
-2 – 3 =

-3 * 4 =

16 ÷ -4 =

3. An online retailer charges $6.99 plus $0.55 per pound to shop electronics purchases. How many pounds is a DVD player for which the shipping charge is $11.94?

4. The diameter of the circular base is 4 inches. The height is 10 inches. Calculate the volume.



5. Solve the equations:

$\frac{n}{6} - 7 = 35$

$\frac{m}{5} + 9 = 41$

6. Lexie is making a model of the Empire State Building. The scale of the model is 1 in = 9 ft. The needle at the top is 31.5 ft tall. How big should the needle on the model be?

7. Fill in the table below using

$y = -2x - 3$

x	y
-3	
2	
5	

8. Use the distributive property to simplify:

$-2\,(7 - 5x)$

$\frac{3}{2}(2a + b - 6c)$

9. Write 15^4 as a product of the same factor.

Evaluate 7^3.

What is the square root of 81?

10. Solve the equations:

$-4x - 5 = 3$

$2(2x + 4) = 20$

11. If a quadrilateral has three angles measuring 60°, 45°, and 100°, find the measure of the fourth angle.

Combine like terms to simplify:

$-10 + 12a - 7a^2 + 7 - 3a$

$3(4x - 5y) + 9x$

13. Perform the operations:

$-\frac{1}{2} + 3$ =

$-\frac{1}{2}$ - 3 =

-0.25 * 4 =

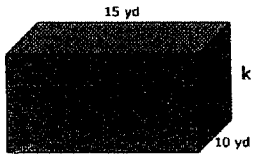
-6 ÷ -12 =

14. Evaluate:

$72 \div 3 - 5(2.8) + 9$

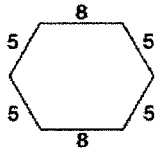
$3 * 14(10 - 8) - 60$

15. 25. Find the value of *k* if the volume is 1800 cu yd?



16. If you're working at an amusement park and you want to survey people for their favorite ride, describe a way you could get a random sample and a way to get a biased sample.

17. Write an expression to find the perimeter of the hexagon below.



18. Perform the operations:

-2 + -9 =

2 – 13 =

3 * -7 =

-64 ÷ 4 =

19. Find a shoebox (or any other rectangular prism). Measure all the sides in inches. Find the total surface area of all 6 sides.

20. The diameter of the circular base is 8 inches. The height is 7 inches. Calculate the volume.

21. Solve the inequality:

$5x - 18 < 7$

$\frac{x}{3} + 6 \geq -10$

22. Solve the equation:

$\frac{b}{9} - 5 = 0$

$4(3y - 1) = 44$

23. Perform the operations:

0.75 + -0.5 =

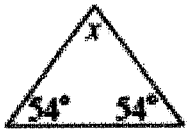
2 – 3.25 =

$6 * -\frac{1}{3}$ =

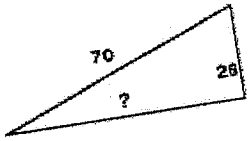
$6 \div -\frac{1}{3}$ =

24. At the Summer House you are ordering ice cream. There are 3 soft serve flavors, 4 hot toppings, and 5 candy toppings. How many options do I have for sundae combinations if I choose one of each?

25. Write an equation to find the value of the missing angle. What is the value of *x*?



26. Use the Pythagorean Theorem to find the missing side length.



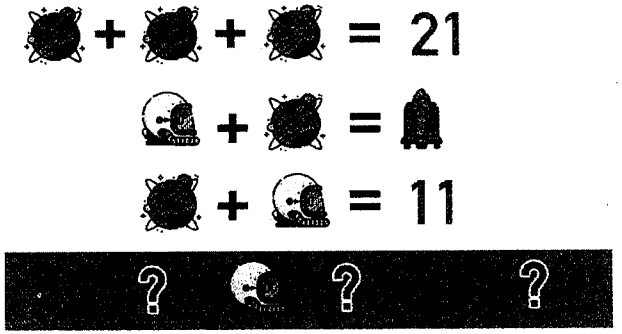
27. Write an equation to show the sum of three consecutive numbers is 21. What are the three numbers?

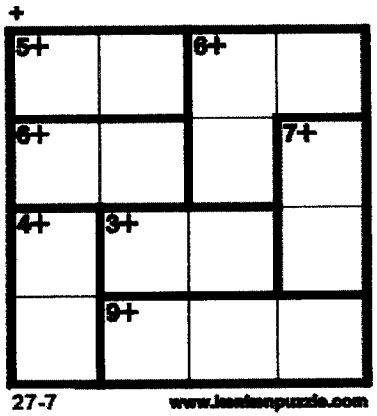
28. Play a math thinking game like:
Yahtzee
Mastermind
Monopoly
Life
Tenzi
Battleship
Dominoes
Guess My Number

Additional Math Activities

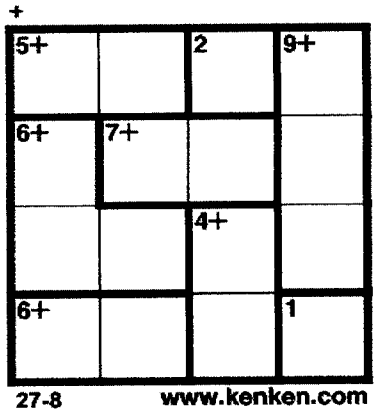
Fun math books to read	Fun websites to explore
A Gebra Named Al by Windy Isdell *Math Curse* by Jon Scieszka *Guinness Book of Records* by Time Inc *Mathematicians are People Too* by Luetta Reimer & Wilbert Reimer *Sir Cumference and the Great Knight of Angleland* by Neuschwander, Cindy *Spaghetti and Meatballs for All* by Burns, Marilyn *What's Your Angle Pythagoras?* By Julie Ellis	www.aplusmath.com http://www.setgame.com/ http://calculationnation.nctm.org/ http://www.ck12.org/summer/?summerLeaning=true http://figurethis.nctm.org/index.html www.prodigygame.com math practice https://www.mathcounts.org/resources/problem-of-the-week http://www.kenkenpuzzle.com/ https://mathszone.co.uk/resources/grid/ooodle/ (math wordle)

Additional Math Puzzles to Solve:





27-7 www.kenkenpuzzle.com



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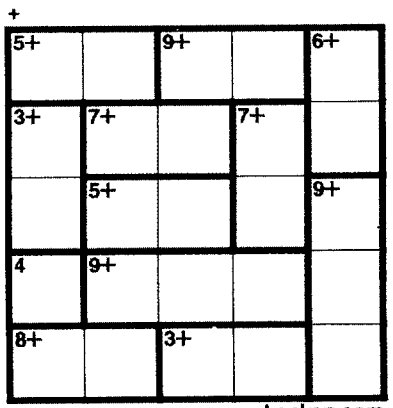
HOW TO PLAY KENKEN®

1. Fill in each square with a single number. In a 3x3 grid, use the numbers 1 through 3. In a 4x4 grid, use the numbers 1 through 4. In a 5x5 grid, use the numbers 1 through 5...and so on.
2. Do not repeat numbers in any individual row or column. For example, in a 3x3 grid, each column and each row should be filled in with the numbers 1, 2, and 3, with no duplication.
3. Each heavily outlined set of squares is called a "cage." The numbers in each cage must combine (in any order) to produce the target number indicated in the top corner by using the mathematical operation next to the target number.
4. A number may be repeated within a cage as long as it is not in the same row or column.

HINTS

1. First fill in single box cages, called "freebies," with the number in the top left corner.
2. Note the candidates (all possible numbers for each square) for each remaining square and then determine the correct numbers by math, logic, and process of elimination.
3. Each puzzle has one unique solution.



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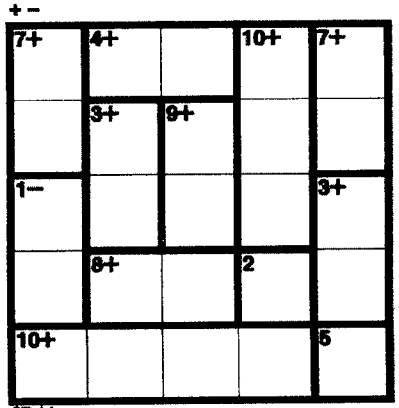

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