Summer Math Learning Packet

Students entering Pre-Algebra-8

The daily activities in this summer math packet will review math concepts and skills of the grade that has just been completed during the 2014-2015 school year. 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 practice in this summer packet addresses the Fairfield Public School Curriculum for Mathematics which incorporates the Common Core Standards addressing these 4 critical areas in the Math-7 course:

1) Developing understanding of and applying proportional relationships
2) Developing understanding of operations with rational numbers and working with expressions and linear equations
3) Solving problems involving scale drawings and informal geometric constructions, and working with two- and three dimensional shapes to solve problems involving area, surface area, and volume
4) Drawing inferences about populations based on samples.

The packet consists of 2 calendar pages, one for June/July and one for August, as well as directions for math games to be played at home. Literature, worksheets, APPs and websites are also recommended to explore mathematics in new ways. We encourage you to complete at least 15 math days each month. Keep track of your math in a journal.

Educational and Fun APPS and Websites to Practice Math

Student Accountability

I spent at least 10 minutes a day, 4 to 5 times a week, practicing math. I completed at least 250 – 300 minutes of math practice over the course of the summer. I recorded my minutes on the tracking sheet. I returned the recording sheet to my 8th grade math teacher. I also showed my teacher my journal where I kept track of my mathematical thinking.

_____ _____

Student Signature Date

Websites:	**Great Math Books to Read:**
Here are websites that you can access at the **Fairfield Public Library** if you do not have a computer at home**.** You can record your activity on the "Create Your Own Summer Math Calendar!" sheet provided. **http://www.ixl.com/** **http://www.figurethis.org/index.html** **http://nrich.maths.org/frontpage** **http://www.khanacademy.org/** **http://mathforum.org/index.html** **http://www.coolmath4kids.com/** **http://www.figurethis.org/index.html** **http://www.thinkingblocks.com/** **http://mathplayground.com/** **http://illuminations.nctm.org/activitysearch.aspx**	Evil Genius by Catherine Jinks Forever Changes by Brendan Halpin Geek Abroad by Piper Banks All of the Above by Shelley Pearsall Hannah Divided by Adele Griffin A Higher Geometry by Sharelle Byars Moranville Guinness Book of Records by Time Inc Mathematicians are People Too by Luetta Reimer & Wilbert Reimer

APPS to Practice Math!

This is a great, fun way to get practice with math skills on a smartphone or iPad. Many of these Apps are free or inexpensive. There are lots of other apps out there, but these are some of our favorites.

APPS	**APPS**
Nine Gaps	iCut Deluxe
Khan Academy	Math Doodles
Math Zombie	Flash to Pass
Math Bingo	Sumdog
Math Hunt	Sushi Monster,
Symmetry Shuffle	Slice It!
Kakooma	Ratio rumble
Deep sea duel	Chicken coop fractions
Pick a path	Zoom math
Lobster diver	Super 7
Math matrix	Pizza shop and slide 1000
Middle School Math HD	

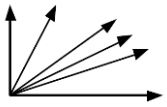
Worksheets to Practice Math

http://www.commoncoresheets.com/

Pre-Algebra-8 Summer Work Calendar
June/July 2015

28	29 Mia's cell phone plan: $15 a month plus free texts plus $0.20 per minute of call time. Mia made 30 minutes of calls this month, and 110 texts. How much does she have to pay?	30 Which is a better price? Why? a. 15oz. for $1.79 b. 12 oz. for $1.49	1 33.3% is the answer. What could the question possibly be? Challenge yourself to think of more questions.	2 Go to website: http://nrich.maths.org/public/leg.php?code=71&cl=3&cldcmpid=5864 and use reasoning and proof to solve the problems.	3 Place the numbers –2, -1, 0, 1, 2 in the circles in the diagram so the sum of the numbers in each direction is the same. 	4
5	6 There are three choices of jellybeans: *grape, cherry and orange*. If the probability of getting a grape is 3/10 and the probability of getting cherry is 1/5, what is the probability of getting orange?	7 Twice a number (n) minus nine is ninety-five. Find the number (n).	8 Try a new activity at **http://www.coolmath4kids.com/** Challenge yourself. What did you chose to do?	9 A menu has these options for sandwiches: 3 types of bread, 4 meat choices, 5 topping choices. How many possible sandwiches can be made? Can you create a different menu with the same outcome?	10 Solve: 45 ÷ (-9) = (-105) ÷ (-15) =	11
12	13 Look up a math topic and read about the history. Who discovered it? How was it used? Ex. pi, gallons, metric…	14 Joe has an 80:1 scale-drawing of the floor plan of this house. On the floor plan, the dimensions of his rectangular living room are 1 7/8 inches by 2 1/2 inches. What is the area of the living room in square feet?.	15 Write an expression for the sequence of operations. Add 3 to *x*, subtract the result from1, then double what you have.	16 Visit the website http://nlvm.usu.edu/en/nav/vlibrary.html . Challenge yourself with fun activities! List them.	17 If the product of 6 integers is negative, at most how many of the integers can be negative?	18
19	20 Games Unlimited buys video games for $10. The store increases the price 300%. What is the price of the video game?	21 Go to http://nrich.maths.org/public/leg.php?code=218&cl=3&cldcmpid=5864 website, and play a probability game.	22 Using a grocery store receipt, figure what percentage of the bill was spent on vegetables, meat, drinks, junk food …	23 Can a triangle have more than one obtuse angle? Will three sides of any length create a triangle?	24 Describe situations in which opposite quantities combine to make 0.	25
26	27 The pages of a book are numbered consecutively from 1 to 275. How many times is the digit 8 used in numbering the pages?	28 Add: 2 + (-3) = (-2) + (-3) = (-2) + 3 =	29 A circle has a circumference of 28π centimeters (cm). What is the area, in cm, of this circle? Show all work necessary to justify your response.	30 Choose a favorite professional athlete and research his/her annual salary. How much does s/he earn in a month? A day?	31 Choose a geometry activity at **Math Illuminations** **http://illuminations.nctm.org/activitysearch.aspx** **Record what you did.**	

Pre-Algebra-8 Summer Work Calendar
August 2015

						1
2	3 Using a receipt, find the mean, median, and mode of the prices of the items on the receipt from a store (grocery, clothing …)	4 Solve: 3w + 2 = 20 Can you write a real world problem that this equation represents?	5 Joe has a bag containing 8 red sweets, 9 yellow ones and 11 green. He takes out a sweet and eats it, then, he takes out a second sweet. What is the probability that both the sweets are red?	6 Visit the website: http://nrich.maths.org/secondary-lower and play a game with positive and negative integers	7 Play a strategy game. Ex. Monopoly, Parcheesi, Mancala, Connect Four … What strategy did you use?	8
9	10 Look up a famous math person and read about him/her. What did s/he discovered? How was it used? Ex. Fibonacci, Pythagoras …	11 Play **Sudoku** from the newspaper How did logic help you to solve the puzzle?	12 Visit the website Figure this and look for a real life math challenge. http://www.figurethis.org/index.html	13 George's weekly pay rate is $455 per week. He receives a 20% raise. What is his new weekly wage rate?	14 m∠A= 13° and m∠B=77° Are the angles complementary?	15
16	17 visit the website: http://nrich.maths.org/5864 and play *Connect Three* with positive & negative integers..	18 Calculate: 7 x 8 = (-7) x 8 = (-7) x (-8) =	19 Find the area of a circle if the diameter is 20 feet.	20 Dave buys 2 pineapples and some bananas. One pineapple is $2.99. Bananas are $0.67 per lb. He wants to spend less than $10.00. Write an inequality that represents the number of pounds of bananas, b, he can buy.	21 Dan's salary is $70 less than Sam's, whose weekly salary is $50 more than Jen's. If Jen earns $280 per week, how much money does Dan earn per week?	22
23	24 In the following equation, a and b are both integers, find their value: $a(3x - 8) = b - 18x$	25 Make a paper airplane and fly it several times. Find the mean, median, and mode of the distance your plane can fly.	26 May 1st Jay's mom gives him 1 cent. Each day, she pays double the amount she paid the day before. How much money did Mike earn in total by May 15?	27 How many pairs of adjacent angles occur in this configuration of 6 rays? Explain your results. 	28 **YOU DID IT!** Please bring your journal to your eighth grade teacher on the first day of school!	29

Date	Website (Give Name)	Activity	Content Focus	Book Name (Give Name)	Minutes Worked	Parent Initial
7/2/14	nrich.maths.org	Coin Tossing Game	Experimental Probability	----	15 minutes	PLR

Date	Website (Give Name)	Activity	Content Focus	Book Name (Give Name)	Minutes Worked	Parent Initial
8/5/14	nrich.maths.org	Flippin' Discs	Experimental Probability	----	15 minutes	PLR

Pre-Algebra-8 Answer Key
Answers will vary for many of the activities depending on the choices students make. Here are the answers for activities with specific solutions.

June 30
15 + (0.20 x 30) = 21
15 + 6 = 21

She has to pay the phone company $21

June 30
15 oz. for $1.79 is a better value as it is $0.11 per oz. and 12 oz. for $1.49 is $0.12 per oz.

July 1
Example: A store is having a 1/3 off all merchandise sale. What percent off would that be?

July 3
Possible answer:

-2 0 2

1

-1

July 6
The probability of getting an orange jelly bean is ½.

July 7
$2n - 9 = 95$
$n = 52$

July 9
There are 60 possible sandwiches. Use the counting principle (3 x 4 x 5 = 60), or make a table, or tree diagram.

Answers will vary for creating a different menu.
Examples:
2 x 2 x 15
2 x 3 x 10

July 10
45 ÷ (-9) = -5
(-105) ÷ (-15) = 7

July 14
The dimensions of the real living room in inches are:
80 × 1 7/8 = 150
80 × 2 1/2 = 200
The area of the real living room is 150 in × 200 in = 30,000 in^2.

To convert square inches to square feet, you have to divide by $12^2 = 144$.
30,000 ÷ 144 = 208 1/3

So the area of the living room is 208 1/3 ft^2.

July 15
$2[1 - (x + 3)]$

July 17
Any ODD number of negative integers will lead to a negative answer, therefore with the limit being 6, the answer will be 5.

July 20
Using proportional reasoning, if $10 is 100% then what amount would be 300%? Since 300% is 3 times 100%, $30 would be $10 times 3. Thirty dollars represents the amount of increase from $10 so the new price of the video game would be $40.

July 23
No, a triangle cannot have more than one obtuse angle. An obtuse angle is a measurement that is greater than 90 degrees. When all the interior angles of a triangle are added together, they must add up to 180 degrees. No, the sum of the two smaller sides must be larger than the third side.

July 24
Example:
You borrow $10 from a friend and then you pay your friend back.

July 27
The number 8 will occur 47 times.

July 28
2 + (-3)= -1
(-2) + (-3) = -5
(-2) + 3 = -1

July 29
First, find the radius: $r = 28\pi/2\pi = 14$ cm.
Then find the area:
$A = \pi(142) = 196\pi$ cm^2.
OR
$A \approx (3.14)(142) \approx 615.44$ cm^2.

August 4
$w = 6$

August 5
8/28 x 7/27 = 8/108

August 13
$455 x 1.20 = $546.00

August 14
The two angles are complimentary. Complimentary angles add up to 90 degrees.

August 18
7 x 8 = 56
(-7) x 8 = -56
(-7) x (-8) – 56

August 19
The area of the circle would be 314 ft^2

August 20
$b < 6$

August 21
Dan earns $260 per week

August 24
a = -6
b = 48

August 26
$2^{16} – 1 = 165,535$

August 27
Notice that adjacent angles are not all composed from adjacent rays. But a pair of adjacent angles is determined by three rays and each collection of three rays determines a different pair of adjacent angels. Thus, each small angle has four adjacent angles. In all, there are 20 adjacent angles.