



Winnisquam Regional Middle School 2011 Summer Math Practice for students entering grade 8

Summer is a time for our students to take a much anticipated and needed break from the daily academic routine; a time to relax and refresh. Likewise, it also offers a time for renewal and preparation for the upcoming school year. Throughout this past school year, our students have deepened their understanding of many mathematical topics and have learned numerous new skills and concepts. In order for these hard-earned skills to be at their fingertips when they return in August, it is important that they have opportunities to refresh and practice math through these coming summer weeks, therefore **we are requiring all middle school students to complete the attached 20 practice problems over the summer.**

These 20 problems are based on skills the State of New Hampshire will expect the students to demonstrate on the 2011 NECAP test in October. They are concepts the students should have seen in the 2010-2011 school year. We understand that not all students will be able to complete every problem but we would like students to try their very best. The problems should be brought to school on day 1, August 29. During week 1, teachers will continue to work with students on these problems. The work will be graded as a practice assignment.

Although not required, we encourage parents to involve their children in additional opportunities to learn and practice math at home. This can range from planning shopping trips, calculating tips and making change, to playing games like Monopoly and building wood working projects. Math is an everyday activity, look for it everywhere! We would love to see some of the work that students complete!

I deas of ways to practice math over the summer.

- Multiplication/Division flashcard practice
- Help with the family budget or balancing checkbook
- Cook from a recipe paying attention to measurements; rewrite a recipe to serve twice as many people, half as many, two thirds as many, etc...
- Design a room, house, garden, etc... using measurements and/or a scale drawing
- Build anything – focusing on the measurements and the shapes being used
- Calculate tax and tip when eating out
- Estimate total bill costs, distances, etc... and compare to actual costs
- Plan a vacation or evening out – include all costs, taxes, tips, mileage, gas, etc...
- Find the best buy of items by calculating unit costs
- Create a “back to school supply list” with costs of items and total costs
- Research how math is used in different careers
- Research a famous mathematician
- Plan a road trip – find the route to get there, distances, amount of gas needed, cost of gas, average speed, time it will take to get there, etc...
- Conduct surveys (favorite ice cream flavor, best movie, beach or pool, etc) and create graphs for your results
- Take your measurement at the beginning and end of summer and graph the results
- Sudoku puzzles/Logic puzzles/Brainteasers
- Find the measurements of objects using different units of measure
- Read a book that involves a math concept
- Write a story or cartoon that would help explain a math topic
- Come up with a song, poem, or other mnemonic device that would help someone remember a concept you learned in math this year
- Make a scrapbook that highlights the main topics of study from this year in math
- Create a one page summary of last year’s math notes
- Track the temperature by graph through the summer
- Record how long it takes for different people to do something – find mean, median, mode, range and graph the data in different ways
- Play some games – most games involve logic and/or math skills – examples: Monopoly, Clue, Checkers, Chess, Blokus, Cribbage, Mastermind, various card games, Dominoes, Yahtzee, Battleship, Life, the list goes on and on...
- Play a Nintendo DS or other video game that involves logic/math: Brain Age, Big Brain Academy, Brain Challenge, Tetris, Personal Trainer: Math, Math Play, Learn Math, Math Blaster, just to name a few
- View some math videos online and then create your own
- Design a game that would include math – be sure to list in your log what math topics were covered in your game and a brief description of how to play
- Study a new math concept and prepare a lesson to help teach others about it
- Students coming out of Algebra and Pre-Algebra can work on chapters on www.classzone.com – pick the book that you used last year and review some of the chapters.
- Spend time on some math websites – there are lots of math practice games out there! Please see list on the next page.

WEBSITES

These are only a few of the hundreds of sites out there - feel free to explore and find more! We understand that everyone may not have internet readily available at home, please know that the public library offers free use of internet.

❖ www.freeworksheets.net

This site allows you to choose topics to practice and creates free worksheets for you to print off and complete. Answer keys are included in order to self grade.

❖ <http://games.funschool.com/game.php?g=1116&category=58&level=6>

Help the Martians repair their ship by solving the powers of multiplication problems.

❖ <http://www.learningwave.com/abmath/>

This in-depth story game calls on you to answer math problems as you try to infiltrate the Absurd Math Dimension. Read carefully! The details for each problem are scattered around the pages

❖ <http://www.nrich.maths.org.uk/public/index.php?screenres=1024>

Different topics for different months. Go exploring to see what you find! You can submit your answers for each problem.

❖ <http://www.figurethis.org/index.html>

Try some of these fun, extended challenges using mathematics

❖ .

❖ <http://www.stfx.ca/special/mathproblems/welcome.html>

Fun and challenging math word problems for grades 5 - 12

❖ .

❖ <http://www.scienceu.com/geometry/>

It's all about shapes, patterns and symmetry!

❖

❖ <http://www.learningwave.com/abmath/7cups/index.html>

This is a VERY challenging challenge! Click on one of the 7 rune symbols around the gate and solve the riddle inside using your geometric knowledge.

❖

❖ <http://mathforum.org/k12/mathtips/beatcalc.html>

This site features a full range of math tricks based on number patterns to help students make quick calculations.

❖

❖ <http://www.prongo.com/math/index.html>

Games, brainteasers, downloads to help practice your skills - choose the appropriate level for you

❖ www.funbrain.com

A variety of games and activities to help practice your math skills. Choose the topic and level that is appropriate for you.

❖ www.mathplayground.com

A variety of games and activities to help practice your math skills. Choose the topic and level that is appropriate for you.

❖ www.mathisfun.com

A variety of games and activities to practice your math skills. Choose the topic and level that is appropriate for you.

❖ www.aaamath.com

Lessons on hundreds of mathematic topics – brush up on some skills or learn new ones – practice problems are here to try also.

❖ www.aplusmath.com

Interactive flashcards, games and printable worksheets on basic math skills.

❖ www.coolmath.com

A variety of games and activities to practice your math skills. Choose the topic and level that is appropriate for you.

Complete each problem. Use your resources to look up skills you need to review. All answers should be labeled, simplified and in proper form.

Name _____
Week of ___/___ to ___/___

1. Look at this table.

Student Groups at Sunrise School

Student group	Total Number of Members (all grades)	Percent of Members in 8 th grade
Honor Society	50	40%
Jazz Band	15	80%
Chess Club	20	50%
Recycling Club	70	30%

Which student group has the least number of members in 8th grade?

- a.) honor society b.) jazz band
c.) chess club d.) recycling club

N&O 7-1

6.

The lengths of two sides of a triangle are 20 cm and 32 cm.
a.) Can the third side of the triangle have a length of 10 cm? Explain why or why not.

b.) Can the third side of the triangle have a length of 48 cm? Explain why or why not.

G&M 7-2

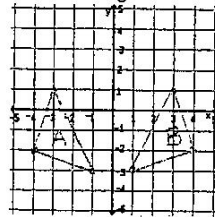
2.

The ships of Oceanic Freight traveled approximately 2.3×10^7 nautical miles. Which number could be the actual number of nautical miles traveled?

- a.) 2,343,167 b.) 23,431,671
c.) 234,431,671 d.) 234,316,710

N&O 7-2

7. Which of the following relates Figure B to Figure A?



- a.) rotation b.) translation
c.) dilation d.) reflection

G&M 7-4 Hint: Look up the vocabulary if you need to.

3.

What is the value of the following expression?

$$8^2 - 40 \div [2(1^4)] + 3$$

Hint: Remember to use the order of operations.

N&O 7-2

8.

Look up similar figures in a reliable resource. List the resource below.

Now define similar figures.

G&M 7-5

4.

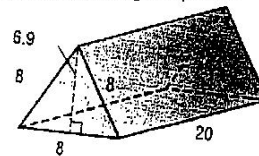
Keesha's computer can receive information at a rate of 52 kilobytes per second. At this rate, how many kilobytes of information can her computer receive in one minute?

- a.) 3012 b.) 3120
c.) 5020 d.) 5200

N&O 7-4

9.

What is the volume of the triangular prism?

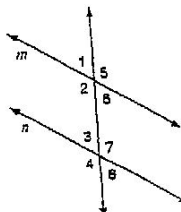


- a.) $1280 m^3$ b.) $1104 m^3$
c.) $552 m^3$ d.) $138 m^3$

G&M 7-6 Hint: m^3 is read as "meters cubed".

5.

In the diagram below, lines m and n are parallel.



Which angles are congruent to $\angle 1$?

- a.) $\angle 2, \angle 3,$ and $\angle 8$ b.) $\angle 5, \angle 2,$ and $\angle 3$
c.) $\angle 6, \angle 7,$ and $\angle 4$ d.) $\angle 6, \angle 3,$ and $\angle 8$

G&M 7-1

10.

The base of a circular pool has a radius of 3 feet. What is the approximate area of the base of the pool? (Use 3.14 for π)

- a.) 88.74 square feet b.) 37.78 square feet
c.) 28.26 square feet d.) 18.84 square feet

Hint: Try drawing the pool and labeling the radius.

G&M 7-6

Check your work carefully.

NECAP 8 prep-1

11.

Ian and Lauren are each making patterns that follow the same rule.
 Ian's pattern: 1, 4, 16, 64
 Lauren's pattern: -2, -8, ____

- What is the next number in Lauren's pattern?
- a.) -14
 - b.) -16
 - c.) -24
 - d.) -32

F&A 7-1

16.

Which property is shown by the following statement?
 $2(a + b) + 3c = 3c + 2(a + b)$

- a.) distributive property
- b.) associative property of multiplication
- c.) commutative property of addition
- d.) commutative property of multiplication

F&A 7-4 Hint: Look to see what has changed from one side of the equation to the other side. What property controls that change?

12.

This table shows the cost of renting a kayak.

hours	cost
1	\$13
2	\$21
3	\$29
4	\$37
5	\$45

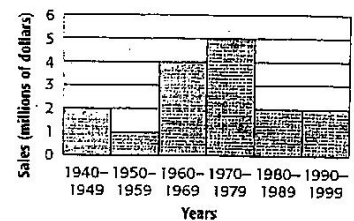
The cost of renting a kayak is represented by the equation $y = 8x + 5$, where x represents the number of hours. What does the slope of the equation represent?

- a.) the total cost for the rental
- b.) the cost of renting a kayak for 5 hours
- c.) the cost of renting a kayak for 8 hours
- d.) the cost increase for each hour of rental

F&A 7-2 Hint: You can look slope up in your math book to review.

17. The following histogram shows the sales from 1940 to 1999 of a windows and siding company. Which statement is most correct?

- a.) In 1965, sales totaled \$4,000,000.
- b.) Sales were at their lowest from 1950 to 1959.
- c.) The total sales in 1985 and in 1999 were the same.
- d.) The total sales from 1940 to 1999 was \$15,000,000.



DSP 7-1

13.

Tessa bakes muffins in the oven. The oven takes 10 minutes to warm up before the first tray of muffins can be baked. Each tray of muffins takes 20 minutes to bake. Create a table that shows the total oven time required to bake 1-4 trays of muffins. Remember to label the columns in your table.

F&A 7-2

18. A survey was taken of members of the school band and chorus to find out what kinds of music middle school students like. Members were asked whether they liked classical or jazz better. Why might this survey be considered biased?

DSP 7-2 Hint: You may want to look up *biased* and review what it means.

14.

The equation below can be used to convert Celsius temperature C , to Fahrenheit temperature F .

$$F = 1.8C + 32$$

What is the Fahrenheit temperature when the Celsius temperature is 20 degrees?

Hint: Substitute 20 for C in the equation and follow the order of operations.
 F&A 7-3

19.

Which kind of display would **best** show the comparison of the number of students with quiz scores of 1-10, 11-20, 21-30, and 31-40?

- a.) stem and leaf plot
- b.) histogram
- c.) scatter plot
- d.) circle graph

Hint: Notice that the data given is in intervals and you want to compare the number in each category.

DSP 7-3

15.

What is the value of x if $x + 8 \div 2 = 3x - 2^2$? Prove your choice works.

- a.) -4
- b.) 0
- c.) 2
- d.) 4

F&A 7-4

20.

If a number cube is rolled, what is the probability of getting an even number?

- a.) $\frac{1}{6}$
- b.) $\frac{1}{3}$
- c.) $\frac{1}{2}$
- d.) $\frac{3}{4}$

DSP 7-5

Check your work carefully.

NECAP 8 prep-1