



Computing Technology for Math Excellence

## Preparing for the Ohio Graduation Test in Mathematics

### Strand Resources: Number, Number Sense, and Operations

The following pages are for students. Use them to help you monitor your own test preparation. You can print the entire booklet, or just those pages for benchmarks you want to work on. The resources provided are at CT4ME: [http://www.ct4me.net/Ohio\\_Graduation\\_Math\\_Test\\_Prep\\_NumberStrand.htm](http://www.ct4me.net/Ohio_Graduation_Math_Test_Prep_NumberStrand.htm)


#### Directions:

1. Identify the benchmark (A-I) below for review in Number, Number Sense, and Operations. Below the benchmark, you will find Web resources for reviewing the concept and practice problems.
2. *Before beginning the Web exercises* for the benchmark you chose, fill in the “K” column: What do you already know about that benchmark? Then in the “W” column: Write what you still want to know.
3. When you have completed using a resource provided, place a check in the box in the first column. This will help you keep track of resources used. Decide if the resource was helpful. Write “yes” or “no” in the last column. Add your comments, if any, about the resource.
4. *After using all the resources* for each benchmark, go to the “L” column and write what you learned. Read your “K” column entries again to see if any of your prior knowledge was inaccurate, and rewrite those statements so that they are correct.
5. Look at the “W” column again, and place a check next to any of your questions that were not answered by using the resources. Be sure to mention those questions in class. Decide how you will find answers to those remaining questions.
6. *When you have completed all of the exercises provided with each benchmark and your K-W-L chart is complete*, reflect on your overall understanding of the benchmark. Be honest with yourself. In the last column circle your belief about your level of mastery: still no or very little understanding (N), some to a great deal of progress (P), I’ve got it!--mastery (M).

Name \_\_\_\_\_

A. Use scientific notation to express large numbers and numbers less than one.		Circle Mastery Level: N            P            M
What I <b>K</b> now	What I <b>W</b> ANT to know	What I <b>L</b> earned
Check when completed	Resources	Was the Web resource helpful? (yes/no) Comment(s)
	AlgebraLab.org: <a href="#">Scientific Notation</a> Introduction and <a href="#">practice exercises</a> converting to scientific notation and decimal notation from the scientific form.	
	West Texas A&M University Virtual Math Lab College Algebra <a href="#">Tutorial: Scientific Notation</a> : How to write numbers in scientific notation, perform multiplication and division with video explanations and practice problems.	

Name \_\_\_\_\_


	<p>Math and Science Activity Center from Edinformatics.com: <a href="#">Scientific Notation Problem Generator</a>. Randomly generated problems in either scientific notation or standard notation representation of a number will be shown. Fill in the blanks, check answer.</p>	
	<p>QuickMath.com: <a href="#">Scientific Notation</a>. Enter your number and see detailed explanation of a conversion.</p>	
	<p> Play the YouTube videos from the Ohio Resource Center Tutorials for High School Mathematics:</p> <ul style="list-style-type: none"><li>• <a href="#">Scientific Notation: Basics</a> for writing numbers in scientific notation.</li></ul>	

Name \_\_\_\_\_

	<ul style="list-style-type: none"> <li>• <a href="#">Exponents</a> for understanding exponents and using the rules for computation.</li> </ul>	
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B. Identify subsets of the real number system.		Circle Mastery Level: N            P            M
What I <b>K</b> now	What I <b>W</b> ANT to know	What I <b>L</b> earned
Check when completed	Resources	Was the Web resource helpful? (yes/no) Comment(s)
	Edmonton Public Schools (CA), <a href="#">Jim Reed, Math 9</a> is the general resource for grade 9. See <a href="#">Number Systems: Demonstration of the subsets of the real number system</a> , then test your understanding with the interactive Number System Muncher.	


Name \_\_\_\_\_

	<p><a href="#">Learner.org Learning Math: Number Sets, Infinity and Zero</a>. Explore number sets that make up the real number system and look more closely at the concept of infinity and the importance of zero.</p>	
	<p>Math Forum, Dr. Math FAQ: <a href="#">Integers, Rational, and Irrational Numbers</a></p>	
	<p> Play video at SchoolTube.com for Real Numbers: <a href="#">Subsets of the Real Numbers</a> illustrates the subsets of the real number system.</p>	

Name \_\_\_\_\_

C. Apply properties of operations and the real number system, and justify when they hold for a set of numbers.		Circle Mastery Level: N            P            M
What I <b>K</b> now	What I <b>W</b> ANT to know	What I <b>L</b> earned
Check when completed	Resources	Was the Web resource helpful? (yes/no) Comment(s)
	Maths Online Interactive Test: <a href="#">Number Sets</a> (multiple choice with more than one answer).	
	Purple Math: <a href="#">Order of Operations</a> (PEMDAS) Lesson with worked examples.	

Name \_\_\_\_\_

	Math.com: <a href="#">Order of Operations</a> with more than one operation. Lesson, worked examples, and practice problems.	
	West Texas A&M University, Intermediate Algebra Tutorials: <a href="#">Operations on Real Numbers, practice with answers</a> , and additional related links	
	 Play videos at YouTube.com for Real Numbers: <ul style="list-style-type: none"><li>• <a href="#">Fundamental Definitions and Notations</a>: Focus on order of operations</li> <li>• <a href="#">Arithmetic of Real Numbers</a>. Using six problems, the presenter reviews addition/subtraction of integers, order of operations, distributive property, combining like terms.</li></ul>	

Name \_\_\_\_\_

D. Connect physical, verbal and symbolic representations of integers, rational numbers and irrational numbers.		Circle Mastery Level: N            P            M
What I <b>K</b> now	What I <b>W</b> ANT to know	What I <b>L</b> earned
Check when completed	Resources	Was the Web resource helpful? (yes/no) Comment(s)
	Math Forum, Dr. Math FAQ: <a href="#">Rational Numbers, and Irrational Numbers</a>	
	The Math Page, Real Numbers: <ul style="list-style-type: none"> <li>• <a href="#">Rational Numbers</a></li>   <li>• <a href="#">Irrational Numbers</a></li> </ul>	



Name \_\_\_\_\_

E. Compare, order and determine equivalent forms of real numbers.		Circle Mastery Level: N            P            M
What I <b>K</b> now	What I <b>W</b> ANT to know	What I <b>L</b> earned
Check when completed	Resources	Was the Web resource helpful? (yes/no) Comment(s)
	Math Forum, Dr. Math FAQ: <a href="#">Explanation for converting fractions, decimals, and percents</a>	
	AAA Math: <a href="#">Comparing and equivalent forms</a> (rational numbers) with online practice	

Name \_\_\_\_\_

	Glencoe Online Study Tools, Pre-Algebra, multiple choice practice: <a href="#">Rational numbers (equivalent forms and subsets)</a>	
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Name \_\_\_\_\_

F. Explain the effects of operations on the magnitude of quantities.		Circle Mastery Level: N            P            M
What I <b>K</b> now	What I <b>W</b> ANT to know	What I <b>L</b> earned
Check when completed	Resources	Was the Web resource helpful? (yes/no) Comment(s)
	<p>NCTM Principles and Standards for School Mathematics E-examples: <a href="#">Learning about Length, Perimeter, Area, and Volume of Similar Objects by Using Interactive Figures</a> has two parts:</p> <ul style="list-style-type: none"> <li>• Side Length and Area of Similar Figures</li>   <li>• Side Length, Volume, and Surface Area of Similar Solids</li> </ul>	

Name \_\_\_\_\_

G. Estimate, compute and solve problems involving real numbers, including ratio, proportion and percent, and explain solutions.		Circle Mastery Level: N            P            M
What I <b>K</b> now	What I <b>W</b> ANT to know	What I <b>L</b> earned
Check when completed	Resources	Was the Web resource helpful? (yes/no) Comment(s)
	Algebra Help: <a href="#">Proportion Basics</a>	
	AlgebraLab.org: <ul style="list-style-type: none"> <li>• <a href="#">Rates and Ratios</a> study aids and practice problems.</li> <li>• <a href="#">Word Problem Exercises</a> using simple proportions to solve five problems with real-life scenarios. Fill in the blank.</li> </ul>	

Name \_\_\_\_\_

	The Math Page, Skill in Arithmetic: <a href="#">Percent increase or decrease problems with answers</a>	
	Glencoe Online Study Tools, Pre-Algebra, multiple choice practice: <ul style="list-style-type: none"><li>• <a href="#">Using the percent proportion</a></li><li>• <a href="#">Using percent equations</a></li></ul>	
	Glencoe Online Study Tools, Algebra I, 2005, multiple choice practice: <ul style="list-style-type: none"><li>• <a href="#">Ratios and Proportions</a></li><li>• <a href="#">Percent of Change</a></li></ul>	
	Shodor.org: <a href="#">Percents</a>	


Name \_\_\_\_\_

H. Find the square root of perfect squares, and approximate the square root of non-perfect squares.		Circle Mastery Level: N            P            M
What I <b>K</b> now	What I <b>W</b> ANT to know	What I <b>L</b> earned
Check when completed	Resources	Was the Web resource helpful? (yes/no) Comment(s)
	<a href="#">How to calculate a square root without a calculator</a>	
	Glencoe Online Study Tools, Algebra I, 2005, multiple choice practice: <a href="#">Square Roots and Real Numbers</a>	
	Algebrahelp.com: <a href="#">Perfect Squares Chart</a>	

Name \_\_\_\_\_

I. Estimate, compute and solve problems involving scientific notation, square roots and numbers with integer exponents.		Circle Mastery Level: N            P            M
What I <b>K</b> now	What I <b>W</b> ANT to know	What I <b>L</b> earned
Check when completed	Resources	Was the Web resource helpful? (yes/no) Comment(s)
	Institute for Energy and Environmental Research: <a href="#">Scientific Notation Review and Practice Worksheet with answers</a>	
	Glencoe Online Study Tools, Geometry Concepts and Applications 2004, multiple choice practice: <a href="#">Simplifying Square Roots</a>	

Name \_\_\_\_\_

	<p>Glencoe Online Study Tools, Algebra I, 2005, multiple choice practice: <a href="#">Compute with Scientific Notation</a></p>	
	<p> Play the YouTube video from the Ohio Resource Center Tutorials for High School Mathematics: <a href="#">Scientific Notation: Computation</a> for computing with scientific notation, using significant digits, and explaining the meaning of precision and accuracy.</p>	



Name \_\_\_\_\_

**Are you ready for the test?**

1. Don't forget to [review and complete the Six Steps for Success, including the full online practice tests.](#)
2. Complete: Number Sense Strand Questions using [California's High School Exit Examination \(CAHSEE\) released questions.](#)



How did you do?

Score: \_\_\_\_\_ right out of \_\_\_\_\_ questions.

Look at the "W" column again for the benchmarks you chose to work on. List the questions you checked that you still have. For each of those, decide how you will find the answer.

What I still <b>WANT</b> to know—my unanswered questions	My Plan to Find the Answers

Name \_\_\_\_\_

Use this page for additional resources you use for test preparation. Write the benchmark.

Benchmark:		Circle Mastery Level: N          P          M
What I <b>K</b> now	What I <b>W</b> ANT to know	What I <b>L</b> earned
Check when completed	Resources	Was the resource helpful? (yes/no) Comment(s)