

**Pleasant Valley Community School District  
GRADE 9-12 - GRADE LEVEL INDICATORS**

<b>Standard 1: Understands and applies concepts of numbers and operations</b>				
<b>Interval Benchmark 1: Describes the properties of numbers and number systems</b>				
<b>Grade Level Benchmark</b>	<b>Vocabulary</b>	<b>Information</b>	<b>Skills</b>	<b>Classroom Resources</b>
a: Understands properties of real numbers and its subsystems	<ul style="list-style-type: none"> <li>absolute value</li> <li>natural numbers</li> <li>integers</li> <li>rational numbers</li> <li>irrational numbers</li> <li>real numbers</li> <li>subsets</li> </ul>	<ul style="list-style-type: none"> <li>Knows the relationships among the subsets of the real numbers system</li> <li>Understands the type of equations that can and cannot be solved within each subset</li> </ul>	<ul style="list-style-type: none"> <li>Represents numbers within each subset</li> <li>Uses the appropriate number system representation for given problem situations</li> <li>Interprets numerical answers on a calculator or computer display</li> </ul>	
b: Explores new number systems, such as vectors	<ul style="list-style-type: none"> <li>vector</li> <li>magnitude</li> <li>direction</li> </ul>	<ul style="list-style-type: none"> <li>Knows what operation properties hold for operations with vectors</li> </ul>	<ul style="list-style-type: none"> <li>Determines what operation properties hold for vector addition and subtraction</li> <li>Calculates vector addition and multiplication</li> </ul>	
c: Uses the appropriate form of a rational number (fraction, decimal, percent) in computations	<ul style="list-style-type: none"> <li>rational number</li> <li>fraction</li> <li>decimal</li> <li>percent</li> <li>equivalent formats</li> <li>proportions</li> </ul>	<ul style="list-style-type: none"> <li>Understands fractions, decimals, and percents can be expressed in various ways</li> <li>Knows which rational number is most appropriate based on the context of the problem</li> </ul>	<ul style="list-style-type: none"> <li>Converts fractions, decimals, and percents to equivalent forms</li> <li>Identifies the appropriate rational number to use in a problem situation</li> </ul>	
d: Uses the properties of roots, exponents in computations	<ul style="list-style-type: none"> <li>squaring</li> <li>square root</li> <li>exponent</li> <li>base</li> <li>expanded notation</li> <li>scientific notation</li> </ul>	<ul style="list-style-type: none"> <li>Knows squaring is the product of a whole number multiplied by itself</li> <li>Knows squaring and square root are inverse operations</li> <li>Knows an exponent tells how many times a base is used as a factor</li> <li>Knows the rules for multiplying and dividing numbers with exponents</li> <li>Knows the rules for raising a number with an exponent to a power</li> </ul>	<ul style="list-style-type: none"> <li>Finds the square root of any number</li> <li>Writes exponents in expanded notation</li> <li>Simplifies expressions containing exponents</li> <li>Convert positive and negative exponents</li> </ul>	