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| C:\Users\EmeraldCity\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\IVU30P0M\MC900149862[1].wmf | | **Math 6/7 Unit 7**  **Rational Explorations** | | | |
| Volume 1 Issue 7 | |  | | | |
| **References**  Helpful Links:  [www.khanacademy.org](http://www.khanacademy.org)  <http://virtualnerd.com/middle-math/integers-coordinate-plane/integers-absolute-value/calculate-absolue-value>  <http://virtualnerd.com/middle-math/integers-coordinate-plane/coordinate-plane/graph-ordered-pairs-identify-quadrants>  <http://virtualnerd.com/middle-math/integers-coordinate-plane/coordinate-plane/calculate-perimeter-rectangle-vertices>  [www.ixl.com/math/grade-6/coordinate-graphs-as-maps](http://www.ixl.com/math/grade-6/coordinate-graphs-as-maps)  <https://learnzillion.com/lesson_plans/3642/?card=50395>  <https://learnzillion.com/lesson_plans/3641/?card=50385>  Georgia Math Grade 6 Textbook: Volume 2 Chapter 12 Lessons 1-8  Online Access:  connected.mcgraw-hill.com –your teacher has your login information | | Dear Parents In this unit students will:   * understand that positive and negative numbers are used together to describe quantities having opposite directions or values. * understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. * recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line. * recognize that the opposite of the opposite of a number is the number itself. * understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane. * recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. * find and position integers and other rational numbers on a horizontal or vertical number line diagram. * find and position pairs of integers and other rational numbers on a coordinate plane. * understand ordering and absolute value of rational numbers. * interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. * write, interpret, and explain statements of order for rational numbers in real-world contexts. * understand the absolute value of a rational number as its distance from 0 on the number line * interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. * distinguish comparisons of absolute value from statements about order. * solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane.  Concepts Students will Use and Understand  * Negative numbers are used to represent quantities that are less than zero such as temperatures, scores in games or sports, and loss of income in business. * Absolute value is useful in ordering and graphing positive and negative numbers. * Positive and negative numbers are often used to solve problems in everyday life. * Rational numbers are points on a number line * Numbers in ordered pairs indicate locations in quadrants of the coordinate plane  Vocabulary  * **Absolute value:** The distance between a number and zero on the number line. The symbol for absolute value is shown in the equation . * **Coordinates:** An ordered pair, , that locates a point in a plane * **Inequality**: Any mathematical sentence that contains the symbols > (greater than), < (less than), < (less than or equal to), or > (greater than or equal to). * **Integers:** The set of whole numbers and their opposites * **Negative numbers:** The set of numbers less than zero * **Opposite number:** Two different numbers that have the same absolute value. Example: 4 and are opposite numbers because both have an absolute value of 4. * **Ordered Pair:** A pair of numbers, , that indicate the position of a point on the Cartesian Plane. * **Origin:** The point of intersection of the vertical and horizontal axes of a Cartesian plane. The coordinates of the origin are (0, 0). * **Positive number:** The set of numbers greater than zero. * **Rational number:** The set of numbers that can be written in the form where *a* and *b* are integers and . * **Sign:** a symbol that indicates whether a number is positive or negative. Example: in , the sign hows this number is read “negative four”. * **x-axis**: The horizontal number line on the Cartesian coordinate plane. * **x-coordinate**: The first number of in ordered pair; the position of a point relative to the vertical axis * **y-axis**: The vertical number line on the Cartesian coordinate plane * **y-coordinate**:  The second number in an ordered pair; the position of a point relative to the horizontal axis   Try <http://intermath.coe.uga.edu/dictnary/homepg.asp> or http://www.amathsdictionaryforkids.com/ for further examples. | | | |
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| Symbols    **I**  **(+, +)**  **II**  **(-, +)**  **III**  **(-, -)**  **IV**  **(+, -)** | | | Example 1 The city of Tannerville has an elevation of 12 feet below sea level. How is that elevation, in feet, represented as an integer? | | Example 2 Which point(s) represents a number with an absolute value of 4?  *S*  *T*  *R*  *Q* |
| Example 3 A football coach recorded the results of his team’s first 4 plays in its last game. The table below shows his data.   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Play** | 1 | 2 | 3 | 4 | | **Number of Yards** | 8 | -2 | 5 | -7 |   On which play did the team lose the fewest yards? | | Example 4 Which point has a positive *x-*coordinate and a negative *y-*coordinate? |
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|  | **Key** | | | | |
| **Example 1**  -12 | | | **Example 2** | |
| Point Q has an absolute value of 4. Negative 4 (-4) is four units from 0 on the number line. | |
| **Example 3**  On play numbers 1 and 3, the team gain yards. On play number 2, the team loss 2 yards which was less than the 7 yards loss on play number 4. Therefore, **the team loss the fewest yards on play number 2**. | | | **Example 4** | |
| Point *P*. (4, -4) | |
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