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| **Mini-lesson #2: Types of Numbers and Roots (Math 7+)** |
| **I. Vocabulary:** Natural Numbers Whole Numbers Integers Rational Numbers Irrational Numbers Ascending order Descending Order |
| **II. Classifying Types of Numbers*** Each number must be simplified (if necessary).
* Every number may have more than 1 answer.

Classify each of the numbers below. Use **N** for Natural, **W** for whole, **I** for Integer, **R** for Rational, and **IR** for Irrational.1) 3 2) 0 3) -7 4) 5)    6) 2.34 7) 8) 9) 10)  |
| **III. Estimating Square Roots** **List the first 15 perfect squares*** You can approximate the value of non-perfect squares using what you know about perfect squares.
* Between which two perfect squares would you find the number 65? \_\_\_\_\_and \_\_\_\_\_

What are their square roots? \_\_\_\_\_ and \_\_\_\_\_* Knowing that, between which two integers would you find? \_\_\_\_\_and \_\_\_\_\_

**Determine the integers where the square root would fall between.** is between and .Therefore, it is between the integers\_\_\_\_\_ and \_\_\_\_.  is between and .Therefore, it is between the integers \_\_\_\_ and \_\_\_\_.  is between and .Therefore, it is between the integers \_\_\_\_ and \_\_\_\_. is between and .Therefore, it is between the integers \_\_\_\_ and \_\_\_\_.–is between and .Therefore, it is between the integers \_\_\_\_ and \_\_\_\_**Estimating Square Roots to the nearest tenth****Example:** Estimate  **Step 1:** What two perfect squares does 28 fall between? \_\_\_\_\_ and \_\_\_\_\_ **Step 2:** What are their square roots? \_\_\_\_\_ and \_\_\_\_\_\_ **Step 3:** What is the distance between 25 and 28? \_\_\_\_\_\_\_ **Step 4:** What is the distance between 28 and 36? \_\_\_\_\_\_\_ **Step** **5**: What would be the halfway point between 25 and 36? \_\_\_\_\_ **Step 6**: Which value is 28 closer to? 25 30.5 36 **Step 7**: Therefore, would approximately be \_\_\_\_\_\_ to the nearest tenth.  **IV. Simplifying Square Roots**  |
| **Example 1:**  |
| 1. Find two factors where one is a perfect square (find the largest perfect square factor).
2. Take the square root of the perfect square. This number goes outside the radical sign
3. The remaining factor stays inside the radical sign.
 | 2 and 12? N1.3 and 8? N4 and 6? Y or • 2 23. |
| Example 2: Example 3:  |

Practice Page for ML #2 – Types of Numbers and Roots (Math 7+)

**Classifying Types of numbers**

Classify each number (May have more than 1 answer).

Use ***N*** for Natural, ***W*** for whole, ***I*** for Integer, ***R*** for Rational, and ***IR*** for Irrational.

1) 2) 3) 4) 5)

6) -13 7) 8) 9) 10)

**Estimating the square root**

1. Tricia estimates that  is about eight. Do you agree or disagree? Explain.
2. Is more or less than 6? Explain.
3. Is 9.5 a good first guess for ? Why or why not?
4. Estimate to the nearest tenth
5. Estimate to the nearest tenth
6. Estimate to the nearest tenth

**Simplify the square roots**

1. **2)**

Order the numbers in ascending order

**3) 7, , , 4) , , 4 , 5**

Graph the numbers on a number line.

**5) -0.4, , -2, , and 3**

0

**6) 6.5, - 4 , , -**

0

**Order the values in ascending order**

**7)**