**Warm Up:**
Write a word phrase for the following.

3x + 2

Simplify.

\[ 5^3 \quad (3 + 2)^2 - 7 \quad \frac{4^4}{8} \]

**ACT Question:**
Which one of the following is a solution to the equation \( x^4 - 2x^2 = -1 \)?
A.) 0  B.) 1  C.) 2  D.) 3  E.) 4

**Vocabulary:**
Root: a number \( a \) is a square root of a number \( b \) if \( a^2 = b \)
Example: \( 7^2 = 49 \), so 7 is a square root of 49
The expression under the radical symbol
\[ \sqrt{a} \quad \text{radicand} \]

**Examples 1-4:**
Simplify each expression.
Examples 5-8: (with your shoulder buddy)
Simplify each expression.

Vocabulary:
- **Set:** is a collection of
  - of the set: each
  - consists of from the given
  - set

Vocabulary:
- **Rational Number:** is any number that you can write in the form \( \frac{a}{b} \), where \( a \) and \( b \) are integers and \( b \neq 0 \) (decimals can terminate or repeat)
- **Natural Number:** all positive numbers (does NOT include zero or decimals)
- **Whole Numbers:** all positive numbers (include zero but does NOT include decimals)
- **Integers:** all positive and negative numbers (NO decimals)
- **Irrational Numbers:** cannot be represented as the quotient of two integers (do not terminate or repeat)
- **Real Numbers:** Rational and Irrational numbers form this set
**Real Numbers:**

**Examples 9-11:**
Name the subset of the real numbers to which each number belongs.

Can they be a member of more than one?

**Examples 12 and 13:**
Order the numbers from least to greatest.

**Examples 14 and 15:** (with your shoulder buddy)
Order the numbers from least to greatest.
Example 16:
Marsha, Josh, and Tyler are comparing how fast they can type. Marsha types \(125\) words in \(7.5\) minutes. Josh types \(65\) words in \(3\) minutes. Tyler types \(400\) words in \(28\) minutes. Order the students according to who can type the fastest.

Summary
How should you simplify radicals?

What is the biggest set of numbers?

How should you go about ordering numbers?