Math 8 Schroeder

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **Chapter 2 – Exponents**

Test Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

To do:

2.1 – Exponents

* Complete Notes ⃝

2.2 – BEDMAS

* Complete Notes ⃝

2.3 – Square Roots of Perfect Squares

* Complete Notes ⃝
* Quiz 1 ⃝

2.4 – Square Roots of Whole Numbers

* Complete Notes ⃝

2.5 – Pythagorean Theorem

* Complete Notes ⃝

2.6 – Cubes and Cube Roots

* Complete Notes ⃝
* Quiz 2 ⃝

Assignments

* Chapter Assignment ⃝

**Write Unit Test ⃝**

Math 8 **Lesson 2.1 - Exponents** Schroeder

An exponent is a quantity representing the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to which a given number or expression is to be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Expressed as:

**Examples:**

1. Expand and evaluate:
	1. $6^{3}$
	2. $9^{7}$

A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the result of when a number is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ by itself. For example:

Any **whole** number multiplied by itself will result in a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Perfect Squares:

|  |  |  |
| --- | --- | --- |
| **Number** | **Number Squared** | **Perfect Square** |
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Math 8 **Lesson 2.2 - BEDMAS** Schroeder

A special order of operations is to be done when there are several operations needed to simplify an expression.

**B**

**E**

**D**

**M**

**A**

**S**

**Examples:**

1. $(5-3)^{2}+18÷2$ 2. $\frac{4^{3}+6}{5×2}$

Math 8 **Lesson 2.3 – Square Roots of Perfect Squares** Schroeder

Finding the square root of a number is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a number squared. For example:

You can use prime factorization to find the square root of a perfect square. For example:

Another way to find the square root of a number is to find all the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the number. Factors are all the numbers that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ into it. For example:

Whenever a number has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that factor is the square root of the number. So a perfect square will have an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ number of factors. For example:

**Examples:**

1. $\sqrt{81}$ $\sqrt{49}$ $\sqrt{400}$
2. Solve for $x$

$x^{2}=36$ $x^{2}=25$ $x^{2}=9$

1. Use prime factorization and factors to evaluate.

$\sqrt{324}$

Math 8 **Lesson 2.4 – Square Roots of Whole Numbers** Schroeder

The square root of a number can also be determined by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ whose area is equal to that number. For example:

We can approximate the square root of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that is not a perfect square by determining what \_\_\_\_\_\_\_\_\_ perfect squares it is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. We use the perfect squares as benchmarks. For example:

Once you have an approximate value you can use \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to be more accurate. (Use a number line)

A more accurate way of finding square roots of non-perfect numbers is to use a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. It is important to understand how this tool works in order to correctly input the calculation to get the correct outcome! For example:

**Examples:**

1. Use your calculator to evaluate. Round your answer to 2 decimal places.

$\sqrt{88}$ $\sqrt{32}$

1. Approximate:

$\sqrt{41}$ $\sqrt{13}$ $\sqrt{82}$

Math 8 **Lesson 2.5 – Pythagorean Theorem** Schroeder

Pythagoras, a Greek mathematician, showed that in any right triangle, there is a special relationship among the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. A right triangle is one that has two sides that form a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The side opposite the right angle is called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and the two shorter sides are called \_\_\_\_\_\_\_\_\_\_\_.



He found that: *The area defined by the square of the hypotenuse equals the sum of the areas defined by the squares of the other two sides.*



Hence,

**Examples:**

1. Solve for the unknown in each of these right triangles:





1. Determine whether or not the following triangle has a right angle (Is it a **Pythagorean triplet**?):



Math 8 **Lesson 2.6 – Cubes and Cubes Roots** Schroeder

Any **whole** number multiplied by itself “twice” will result in a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Perfect Cubes:

|  |  |  |
| --- | --- | --- |
| **Number** | **Number Cubed** | **Perfect Cube** |
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**\*\* You can use similar techniques for evaluating and estimating as you did with perfect squares and square roots \*\***

**Examples:**

1. Estimate:

$\sqrt[3]{46}$ $\sqrt[3]{24}$

1. Evaluate using calculator. Round answer to the nearest hundredth.

$\sqrt[3]{50}$ $\sqrt[3]{74}$