**Lesson 13.5: Square Roots**

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| **GETTING YOURSELF READY** | | | | | | |
| **Materials:**  Mini whiteboards  Student Handout photocopies  Answers to Guided Practice completed and photocopied  Answers to last night’s Independent Practice completed and photocopied  Misconception to New Understanding Sheets | | | **Your Preparation:**  Put last night’s Independent Practice Answer Key and the Misconception to New Understanding Worksheet on a table for students to pick up on their way in to class. | | | **Agenda with times:**  Do Now and Purpose: 5 minutes  Key Vocabulary: 3 minutes  Building the Skill: 15 minutes  Structured Practice: 15 minutes  Guided Practice: 10 minutes  Closure: 2 minutes |
| **GETTING YOUR STUDENTS READY** | | | | | | |
| **\*Do Now:**  Complete the Do Now Handout. | | | | | | |
| **Objective:** Today you will be able to understand how to solve expressions with exponents and square roots. | | | | **Proving Behavior:** By solving word problems with exponents and square roots with 80% accuracy. | | |
| **Purpose:** We are doing this because you will need to simplify exponents and square roots to solve more complex problems such as finding a side length of a right triangle or evaluating expressions. | | | | | | |
| **Key Vocabulary:** (from Glencoe.com)  *Create vocabulary cards with these definitions and a picture to represent them and hang on the word wall. Use the cards to ask the students the given questions about the vocabulary and have them respond chorally or on their mini-whiteboards.* | | | | | | |
| **BUILDING THE SKILL** | | | | | | |
| **Square Roots** | **Say/See:** Say and show each step of the VIP: Calculating the Square Root of a Perfect Square.  **Do:** After each step you say and show, have the students complete that step for problem 1. Then, when you have completed the VIP, have the students pair share how the picture of the square is helpful to represent the problem and the solution. Have the students complete 2-7 as a whiteboard drill.  **Say/See:**  Say and show each step of the VIP: Estimating the Square Root of an Imperfect Square.  **Do:** After each step you say and show, have the students complete that step for problem 1. Then, when you have completed the VIP, have the students work with a partner to complete problem 2 and then complete on their own problems 3-4 as a whiteboard drill.  **Say/See:** Think aloud how you could use the number line to estimate the square roots and complete problem 7.  **Do:** Have the students partner teach number 8 and then complete 9-10 on their own.  **Say/See:** Think aloud problem 11.  **Do:** Have the students partner teach number 12 and then complete 13-16 on their own as a whiteboard drill. | | | | | |
| **PRACTICING THE SKILL** | | | | | | |
| **\*Structured Practice** | | | | | | |
| Time: 5-10 minutes  Materials: mini whiteboards, calculator  **\* If students do not need extra practice in this area, skip this Structured Practice Activity.** | | Game: each person tries to come up with the most accurate square root for a given number. No calculators! | | | | |
| Time: 5 minutes  Materials: Word Problems  Group Size: Pairs  Materials: Mini Whiteboards | | There are three sets of word problems for the Structured/Guided Practice. Have the students complete the first problem of each section, one at a time, with a partner and hold up their whiteboards for you to see their answer. Because they are word problems, require the students to use their strategy of visualizing. They should draw some picture to represent the problem before solving. If the students are proficient, they may go on and use the remaining problems as their Guided Practice and work alone. If they need more help, you may do a whole class think aloud or give them another problem in the section to complete with a partner before releasing them to Guided Practice. | | | | |
| **\*Guided Practice** (the proving behavior of the objective monitored by teacher) | | | | | | |
| **Assignment:** Guided Practice Handout. Have the students complete the remainder of the word problems. Make sure they show their visualization for each problem. | | | | | **Criteria for Mastery:** 80% of the remaining problems. | |
| **Explain Homework:** Finish Independent Practice Handout. Have students show their work and complete the problems. | | | | | | |
| **\*Closure:** On an index card, create one word problem that you feel would represent this lesson. On the back of the index card, solve the problem and make sure you show your visualization. | | | | | | |

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