



## Approximating Irrational Numbers

### Today's Standard

8.NS.A2 - Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g.,  $\pi^2$ ). For example, by truncating the decimal expansion of  $\sqrt{2}$ , show that  $\sqrt{2}$  is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.

### Real-World Applications for this Standard

Estimating the value of  $\pi$  in real-world measurements.; Using  $\sqrt{2}$  in construction and design projects.; Comparing irrational numbers in financial calculations.; Locating irrational numbers on a number line in navigation systems.

### Today I Learned

Today, we learned about approximating irrational numbers, like the square root of 2, using rational numbers. This helps us compare sizes and place them on a number line.

### Common Stumbling Blocks

Some students might think irrational numbers can be written as fractions, but they can't. Others might believe that decimal approximations are exact, but they are just close estimates.

### Quiz Me

- What is an irrational number?
- Can we write irrational numbers as fractions?
- What does it mean to approximate a number?
- How can we place irrational numbers on a number line?
- Why are decimal approximations not exact?

### Help Me

Irrational numbers, like the square root of 2, can't be exactly written as fractions. We use decimal approximations to get close to their value. This helps in real-world tasks like measuring and comparing sizes.

