## Unit 8 Lesson 3: Rational and Irrational Numbers

### 1 Algebra Talk: Positive Solutions (Warm up)

#### Student Task Statement

Find a positive solution to each equation:

$x^{2}=36$

$x^{2}=\frac{9}{4}$

$x^{2}=\frac{1}{4}$

$x^{2}=\frac{49}{25}$

### 2 Three Squares

#### Images for Launch





#### Student Task Statement



1. Draw 3 squares of different sizes with vertices aligned to the vertices of the grid.
2. For each square:
	1. Label the area.
	2. Label the side length.
	3. Write an equation that shows the relationship between the side length and the area.

### 3 Looking for a Solution

#### Student Task Statement

Are any of these numbers a solution to the equation $x^{2}=2$? Explain your reasoning.

* 1
* $\frac{1}{2}$
* $\frac{3}{2}$
* $\frac{7}{5}$

#### Activity Synthesis



### 4 Looking for $\sqrt{2}$

#### Student Task Statement

A **rational number** is a fraction or its opposite (or any number equivalent to a fraction or its opposite).

1. Find some more rational numbers that are close to $\sqrt{2}$.
2. Can you find a rational number that is exactly $\sqrt{2}$?

#### Activity Synthesis





© CC BY Open Up Resources. Adaptations CC BY IM.