## Unit 3 Lesson 3: Exponents That Are Unit Fractions

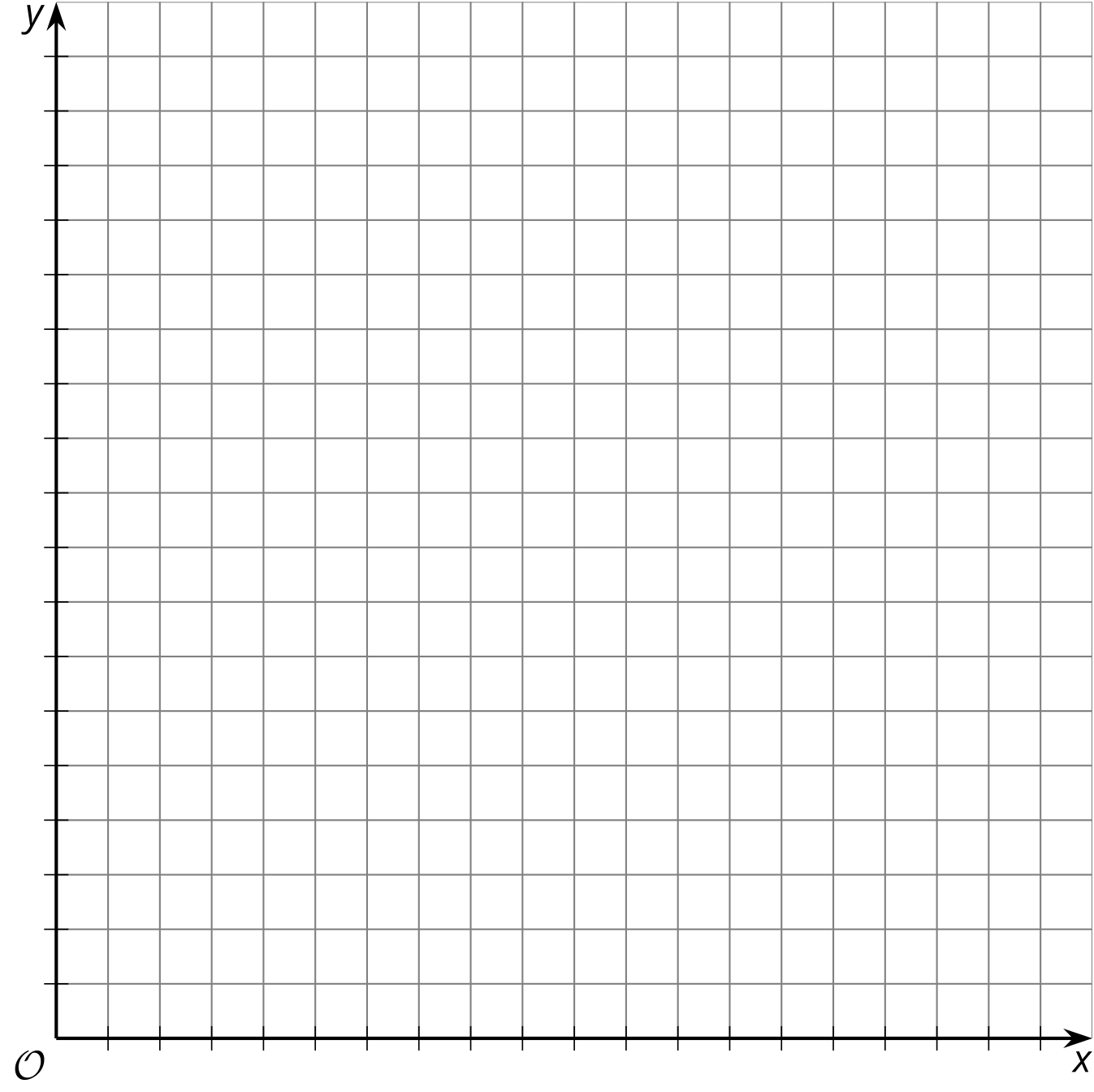
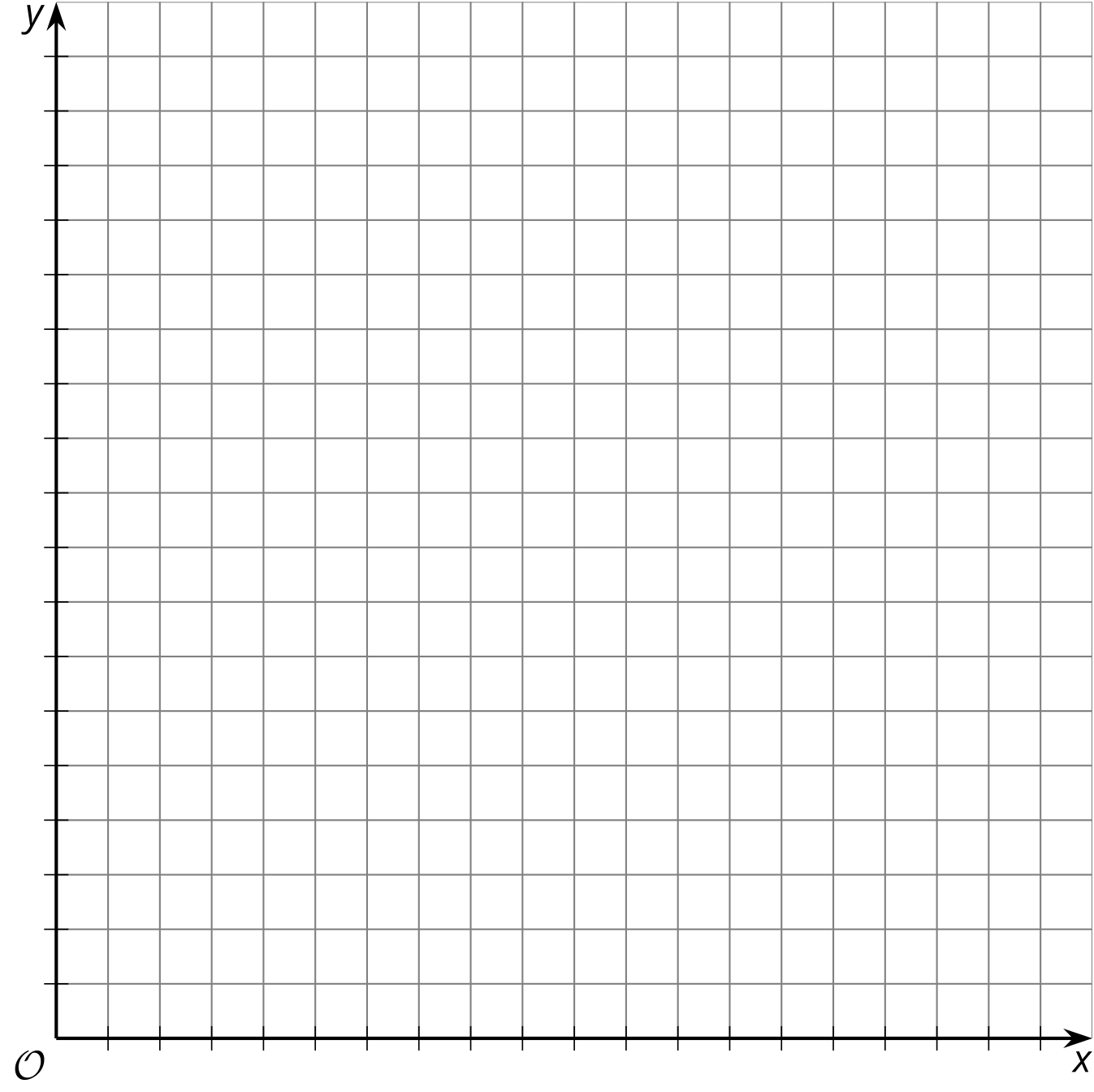
### 1 Sometimes It’s Squared and Sometimes It’s Cubed (Warm up)

#### Student Task Statement

Find a solution to each equation.

### 2 To the...Half?

#### Student Task Statement

1. Clare said, “I know that , , and . I wonder what means?” First, she graphed for some whole number values of , and estimated from the graph.
   1. Graph the function yourself. What estimate do you get for ?
   * 
   1. Using the properties of exponents, Clare evaluated . What did she get?
   2. For that to be true, what must the value of be?
2. Diego saw Clare’s work and said, “Now I’m wondering about .” First he graphed for some whole number values of , and estimated from the graph.
   1. Graph the function yourself. What estimate do you get for ?
   * 
   1. Next he used exponent rules to find the value of . What did he find?
   2. Then he said, “That looks like a root!” What do you think he means?

### 3 Fraction of What, Exactly?

#### Student Task Statement

Use the exponent rules and your understanding of roots to find the exact value of:

### 4 Exponents and Radicals

#### Student Task Statement

Match each exponential expression to an equivalent expression.

* 49
* 343
* 7
* 1



© CC BY 2019 by Illustrative Mathematics®