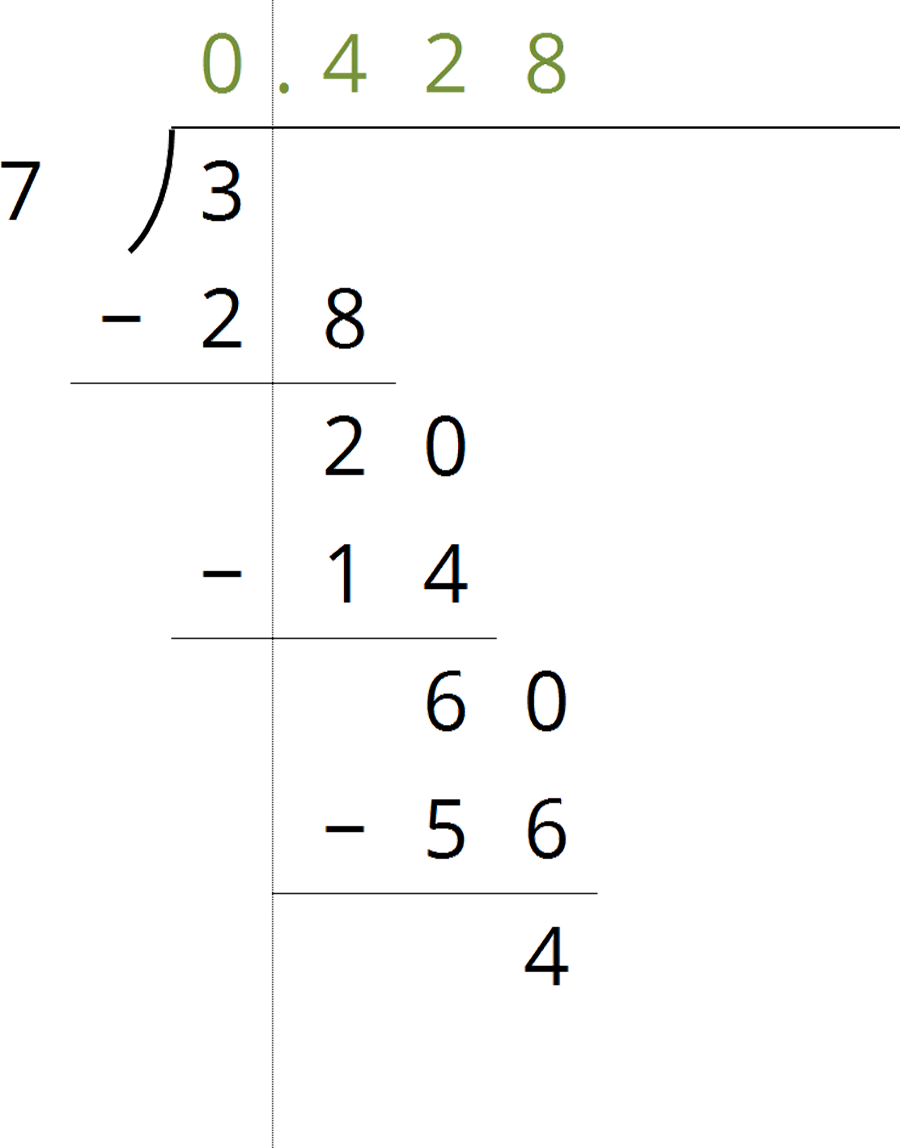
## Unit 8 Lesson 12: Infinite Decimal Expansions

### 1 Searching for Digits (Warm up)

#### Student Task Statement

The first 3 digits after the decimal for the decimal expansion of have been calculated. Find the next 4 digits.



### 2 Some Numbers Are Rational

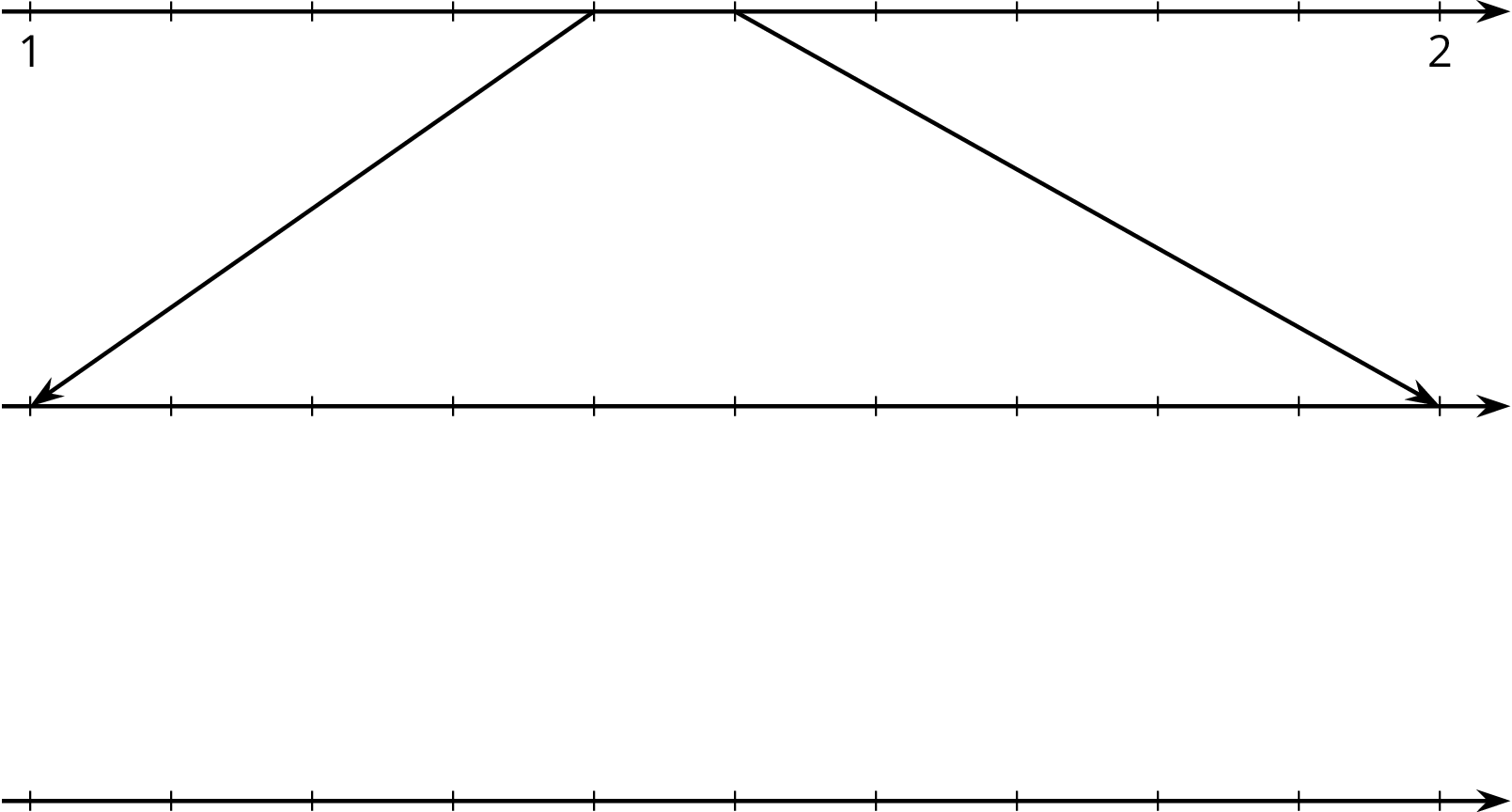
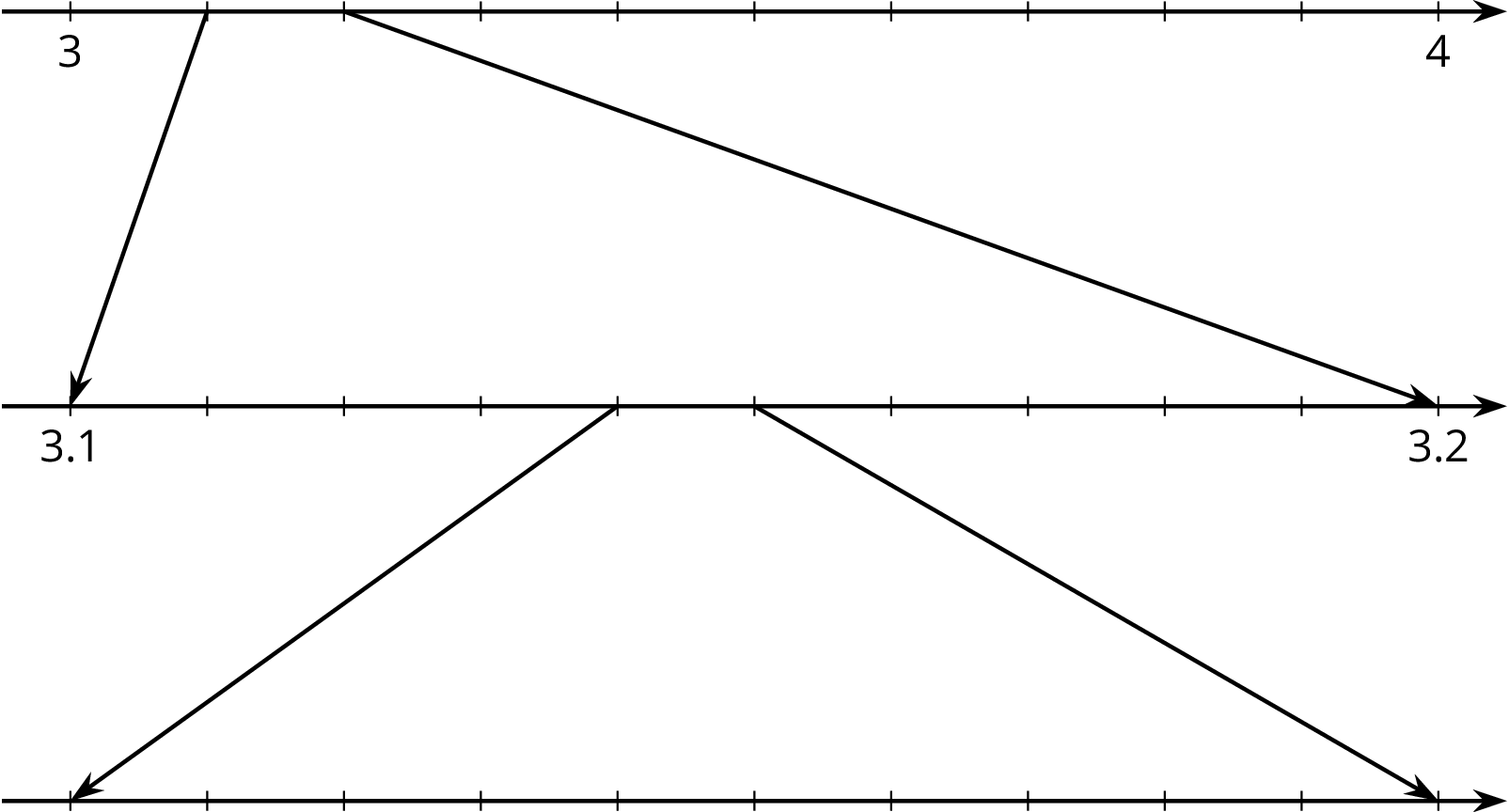
#### Student Task Statement

Your teacher will give your group a set of cards. Each card will have a calculations side and an explanation side.

1. The cards show Noah’s work calculating the fraction representation of . Arrange these in order to see how he figured out that without needing a calculator.
2. Use Noah’s method to calculate the fraction representation of:

### 3 Some Numbers Are Not Rational

#### Student Task Statement

* 1. Why is between 1 and 2 on the number line?
  2. Why is between 1.4 and 1.5 on the number line?
  3. How can you figure out an approximation for accurate to 3 decimal places?
  4. Label all of the tick marks. Plot on all three number lines. Make sure to add arrows from the second to the third number lines.
  + 
  1. Elena notices a beaker in science class says it has a diameter of 9 cm and measures its circumference to be 28.3 cm. What value do you get for using these values and the equation for circumference, ?
  2. Diego learned that one of the space shuttle fuel tanks had a diameter of 840 cm and a circumference of 2,639 cm. What value do you get for using these values and the equation for circumference, ?
  3. Label all of the tick marks on the number lines. Use a calculator to get a very accurate approximation of and plot that number on all three number lines.
  + 
  1. How can you explain the differences between these calculations of ?



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