## Unit 7 Lesson 11: Representing Small Numbers on the Number Line

### 1 Small Numbers on a Number Line (Warm up)

#### Student Task Statement

Kiran drew this number line.



Andre said, “That doesn’t look right to me.”

Explain why Kiran is correct or explain how he can fix the number line.

### 2 Comparing Small Numbers on a Number Line

#### Student Task Statement



1. Label the tick marks on the number line.
2. Plot the following numbers on the number line:
* A. $6⋅10^{-6}$
* B. $6⋅10^{-7}$
* C. $29⋅10^{-7}$
* D. $(0.7)⋅10^{-5}$
1. Which is larger, $29⋅10^{-7}$ or $6⋅10^{-6}$? Estimate how many times larger.
2. Which is larger, $7⋅10^{-8}$ or $3⋅10^{-9}$? Estimate how many times larger.

### 3 Atomic Scale

#### Student Task Statement

1. The radius of an electron is about 0.0000000000003 cm.
	1. Write this number as a multiple of a power of 10.
	2. Decide what power of 10 to put on the right side of this number line and label it.
	3. Label each tick mark as a multiple of a power of 10.
	* 
	1. Plot the radius of the electron in centimeters on the number line.
2. The mass of a proton is about 0.0000000000000000000000017 grams.
	1. Write this number as a multiple of a power of 10.
	2. Decide what power of 10 to put on the right side of this number line and label it.
	3. Label each tick mark as a multiple of a power of 10.
	* 
	1. Plot the mass of the proton in grams on the number line.
3. Point $A$ on the zoomed-in number line describes the wavelength of a certain X-ray in meters.
* 
	1. Write the wavelength of the X-ray as a multiple of a power of 10.
	2. Write the wavelength of the X-ray as a decimal.



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