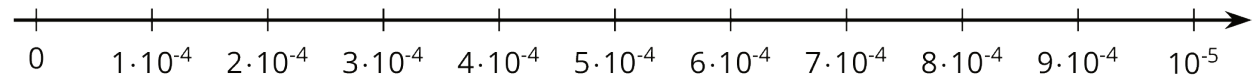


# Unit 7 Lesson 11: Representing Small Numbers on the Number Line

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

### Student Task Statement

Kiran drew this number line.

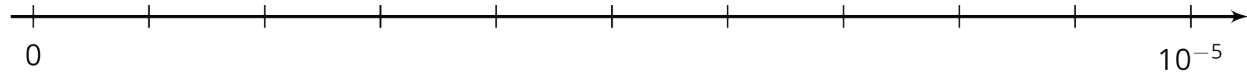


Andre said, "That doesn't look right to me."

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.  $6 \cdot 10^{-6}$

B.  $6 \cdot 10^{-7}$

C.  $29 \cdot 10^{-7}$

D.  $(0.7) \cdot 10^{-5}$

3. Which is larger,  $29 \cdot 10^{-7}$  or  $6 \cdot 10^{-6}$ ? Estimate how many times larger.

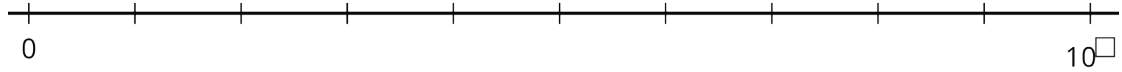
4. Which is larger,  $7 \cdot 10^{-8}$  or  $3 \cdot 10^{-9}$ ? Estimate how many times larger.

### 3 Atomic Scale

#### Student Task Statement

1. The radius of an electron is about 0.00000000000003 cm.

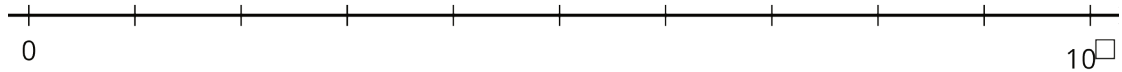
- a. Write this number as a multiple of a power of 10.
- b. Decide what power of 10 to put on the right side of this number line and label it.
- c. Label each tick mark as a multiple of a power of 10.



- d. Plot the radius of the electron in centimeters on the number line.

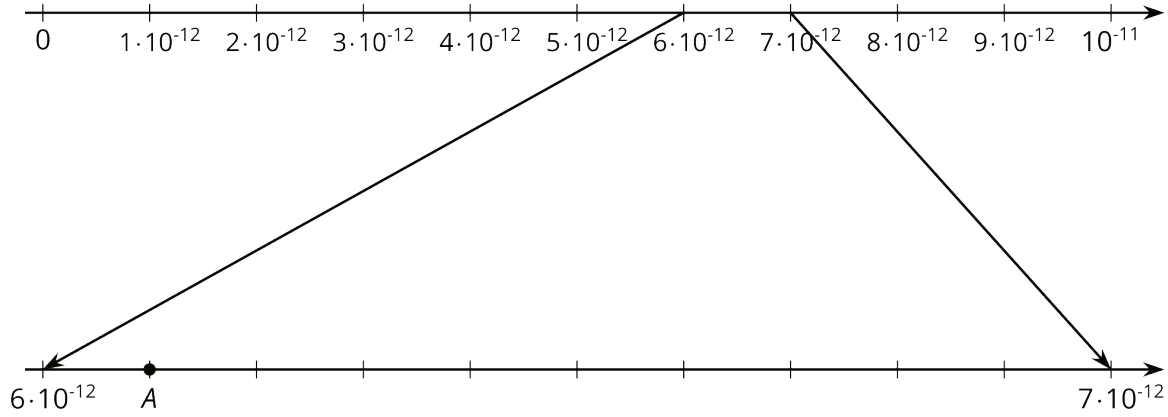
2. The mass of a proton is about 0.0000000000000000000000017 grams.

- a. Write this number as a multiple of a power of 10.
- b. Decide what power of 10 to put on the right side of this number line and label it.
- c. Label each tick mark as a multiple of a power of 10.



- d. 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.



- Write the wavelength of the X-ray as a multiple of a power of 10.
- Write the wavelength of the X-ray as a decimal.