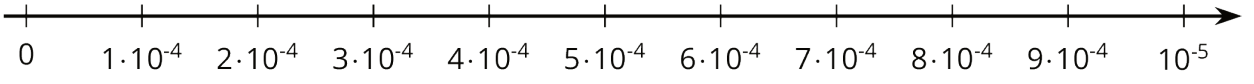
Unit 7 Lesson 11: Representing Small Numbers on the Number Line

1 Small Numbers on a Number Line (Warm up)

Student Task Statement

Kiran drew this number line.

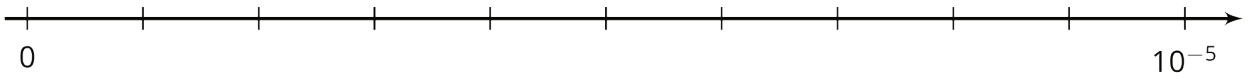


Andre said, “That doesn’t look right to me.”

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

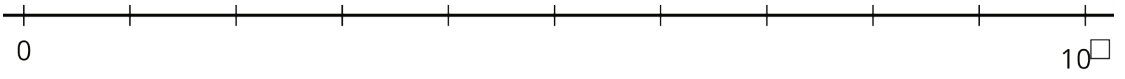
Student Task Statement

1. The radius of an electron is about 0.0000000000003 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.



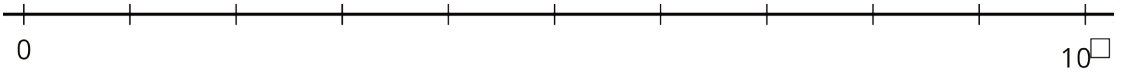
    d. Plot the radius of the electron in centimeters on the number line.

2. The mass of a proton is about 0.00000000000000000000000017 grams.

    a. Write this number as a multiple of a power of 10.

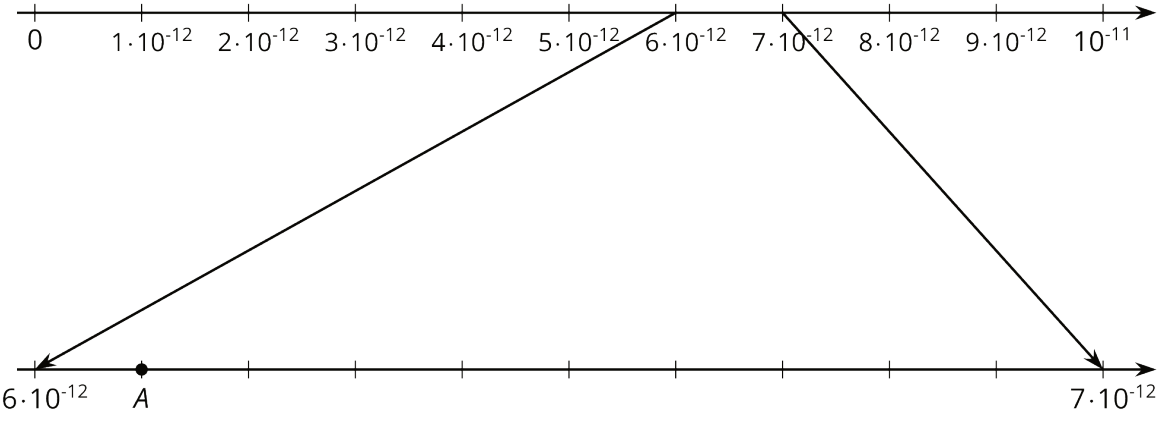
    b. Decide what power of 10 to put on the right side of this number line and label it.

    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.



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

b. Write the wavelength of the X-ray as a decimal.