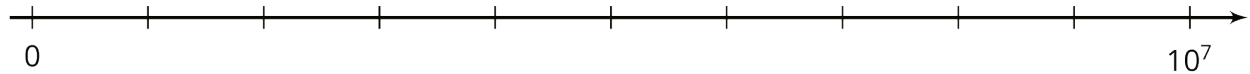


Unit 7 Lesson 10: Representing Large Numbers on the Number Line

1 Labeling Tick Marks on a Number Line (Warm up)

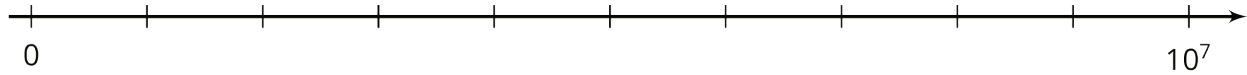
Student Task Statement

Label the tick marks on the number line. Be prepared to explain your reasoning.



2 Comparing Large Numbers with a Number Line

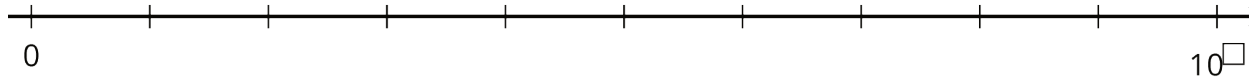
Student Task Statement



1. Place the numbers on the number line. Be prepared to explain your reasoning.
 - a. 4,000,000
 - b. $5 \cdot 10^6$
 - c. $5 \cdot 10^5$
 - d. $75 \cdot 10^5$
 - e. $(0.6) \cdot 10^7$
2. Trade number lines with a partner, and check each other's work. How did your partner decide how to place the numbers? If you disagree about a placement, work to reach an agreement.
3. Which is larger, 4,000,000 or $75 \cdot 10^5$? Estimate how many times larger.

3 The Speeds of Light

Images for Launch



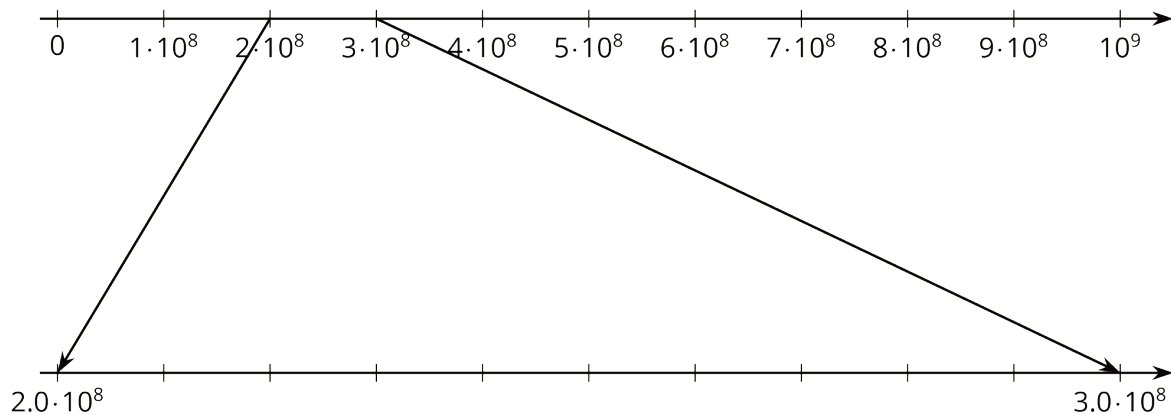
Student Task Statement

The table shows how fast light waves or electricity can travel through different materials.

| material | speed (meters per second) |
|---------------------------|---------------------------|
| space | 300,000,000 |
| water | $(2.25) \cdot 10^8$ |
| copper wire (electricity) | 280,000,000 |
| diamond | $124 \cdot 10^6$ |
| ice | $(2.3) \cdot 10^8$ |
| olive oil | 200,000,000 |

1. Which is faster, light through diamond or light through ice? How can you tell from the expressions for speed?

Let's zoom in to highlight the values between $(2.0) \cdot 10^8$ and $(3.0) \cdot 10^8$.



2. Label the tick marks between $(2.0) \cdot 10^8$ and $(3.0) \cdot 10^8$.
3. Plot a point for each speed on both number lines, and label it with the corresponding material.

4. There is one speed that you cannot plot on the bottom number line. Which is it? Plot it on the top number line instead.
5. Which is faster, light through ice or light through diamond? How can you tell from the number line?