



Problem of the Week

Problem B and Solution

Let's Get These Numbers in Order

Problem

- (a) List the following twelve numbers from least to greatest value.

$$2.04, 1.02, \frac{85}{100}, \frac{175}{100}, \frac{7}{4}, 1\frac{1}{8}, 0.91, \frac{46}{20}, 0.091, \frac{14}{25}, \frac{3}{5}, 1.1$$

Plot these numbers on a number line.

- (b) Determine the largest gap in between two adjacent numbers on the number line.
(c) For your list in part (a), determine a number between the two numbers in the middle of the list, with your number being closer to the larger of the two.

Solution

- (a) The decimals equivalent to the fractional numbers are $\frac{85}{100} = 0.85$, $\frac{175}{100} = 1.75$, $\frac{7}{4} = 1.75$, $1\frac{1}{8} = 1.125$, $\frac{46}{20} = 2.3$, $\frac{14}{25} = 0.56$, and $\frac{3}{5} = 0.6$.

Notice that $\frac{175}{100}$ and $\frac{7}{4}$ have the same value.

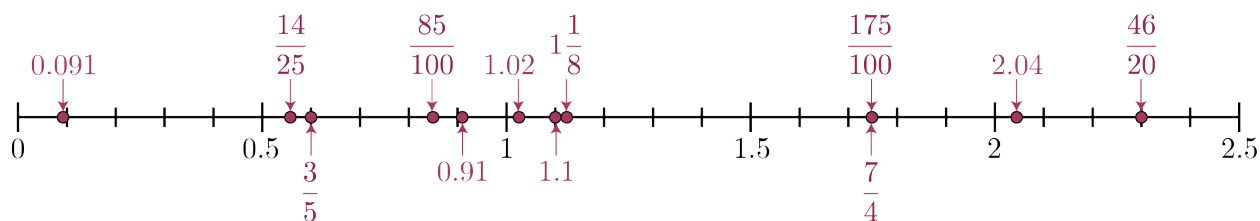
Listed from least to greatest value, the decimals are

$$0.091, 0.56, 0.60, 0.85, 0.91, 1.02, 1.1, 1.125, 1.75 \text{ and } 1.75, 2.04, 2.3$$

In their original format, the numbers, listed from least to greatest value, are

$$0.091, \frac{14}{25}, \frac{3}{5}, \frac{85}{100}, 0.91, 1.02, 1.1, 1\frac{1}{8}, \frac{175}{100} \text{ and } \frac{7}{4} \text{ (in either order), } 2.04, \frac{46}{20}$$

We plot these twelve numbers on a number line from 0 to 2.5.



- (b) The largest gap lies between 1.125 and 1.75, which is 0.625 or $\frac{5}{8}$.
(c) The two middle values are 1.02 and 1.1. A value between these two numbers but closer to 1.1 would also have to be greater than 1.06. One such number is 1.08, but any number with value between 1.06 and 1.1 would satisfy the condition.