

Intro to Calculus

Homework 1¹

Goals

I can...

Translate between interval notation and inequality notation, and number line graphs.

Find points on the number line to meet given conditions.

- Translate the following into interval notation and number line graph statements.
 - $3 \leq x \leq 8$
 - $-11 < x < 2$
 - $-2 < x \leq 4$
 - $12 \leq x \leq 19$
 - $-7 \leq x$
 - $x < 37$
- Translate the following statements written using interval notation into statements using inequality notation.
 - $(-2, 5)$
 - $[-17, -13]$
 - $[3, 10)$
 - $[5, 10]$
 - $(-\infty, -2]$
 - $(5, \infty)$
- Find the points on the number line that divide the line segment from 0 to 6 into three equal pieces. Make a number line sketch to show your solution.
 - Find two points on the number line that divide the line segment from 3 to 12 into three equal pieces. Make a number line sketch to show your solution.
 - Find the four points on the number line that divide the line segment from -5 to 19 into five equal pieces.
 - Describe a method for finding the location of the points which divide a line segment from a to b into n segments. [Show your method works for one of the problems above.](#)
- For each of the following, translate each of the following English statements into inequality statements and then into a number line graph. [Where possible, translate the statement into interval notation.](#)
 - 3 is greater than -6
 - x is less than or equal to 7
 - t is positive
 - z is nonnegative
 - m is at most 9
 - n is not greater than 3
 - k is at least -3
 - x is between 3 and 7

¹ This work is based on material from Prof. Scott Farrand, CSU Sacramento