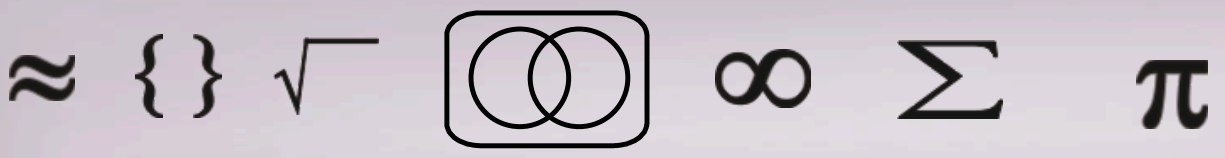


Range

Math 1030 #13b

Domain

Functions: Building Blocks of Mathematical Modeling

Dependent Variable

Independent Variable

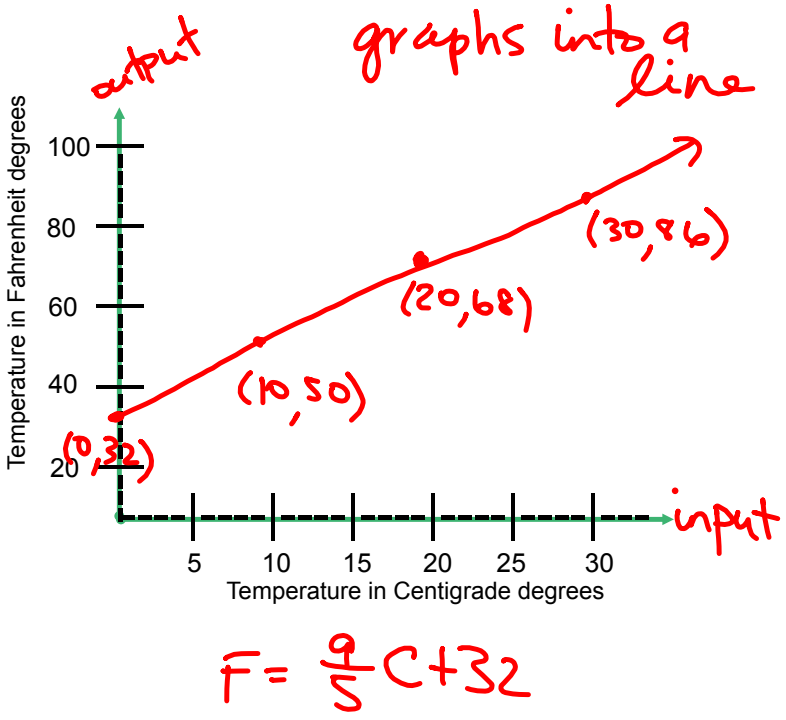
Domain and Range

Representing Functions

1) Numerically - in a table

2) Graph - a picture (is worth 1000 words)

3) Equation



$F = \frac{9}{5}C + 32$

Temperature

°C	°F
0	32
10	50
20	68
30	86

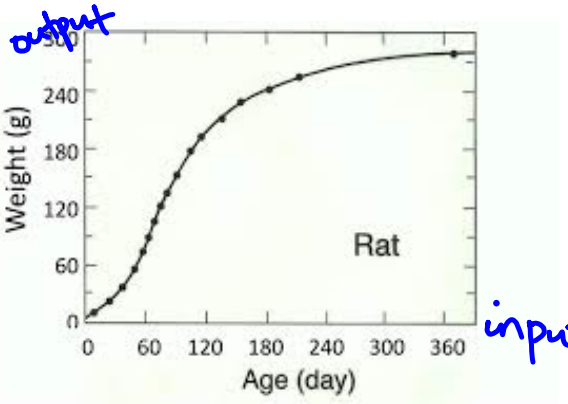
input output

Domain - the set of values that both make sense and are of interest for the independent variable. (set of allowable inputs)

Range - the values of the dependent variable that correspond to the values in the domain. (set of outputs)

EX 1: Consider this graph.

output



input

a) Identify the independent and dependent variables and describe the domain and range.

indep var (input) = age, dep var (output) = wt

domain: (set of values on the horizontal axis where there are pts on the graph) 0 to 365 days

range: (set of values on the vertical axis where there are pts on the graph) 0 to 290 g

b) Describe the function in words.

as a rat gets older, the weight of the rat increases fairly quickly and then levels off

EX 2: Consider this table.

Altitude (ft)	Boiling point of Water (°F)
0	212.0
2,000	208.4
4,000	204.8
6,000	201.0
8,000	195.5

Since boiling pt of water depends on altitude, alt. = input and b.p. = output

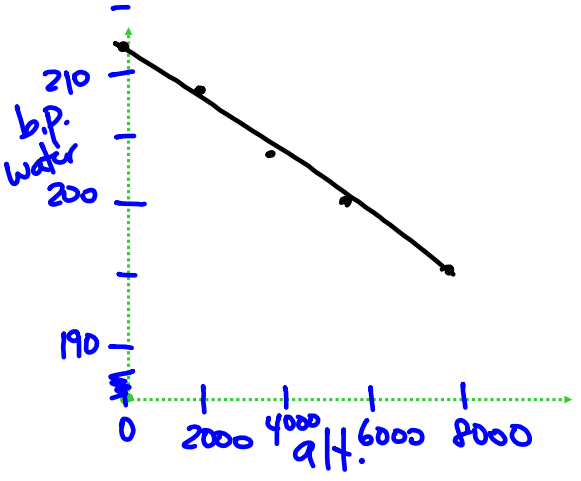
a) Identify the independent and dependent variables and describe the domain and range.

indep. var. = altitude, dep. var. = b.p. of water

domain = [0, 8000] range = [195.5, 212.0]

b) Make a clear graph of the function.

Altitude (ft)	Boiling point of Water (°F)
0	212.0
2,000	208.4
4,000	204.8
6,000	201.0
8,000	195.5



c) Describe the function in words.

as altitude increases, b.p. of water decreases