Four Situations

1. Sketch a graph to model each of the following situations.
Think about the shape of the graph and whether it should be a continuous line or not.

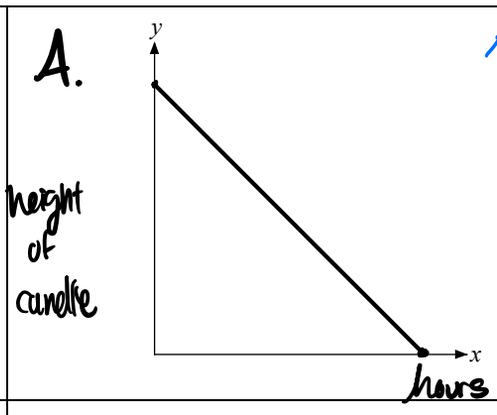
A: Candle

Each hour a candle burns down the same amount.

x = the number of hours that have elapsed.

y = the height of the candle in inches.

continuous

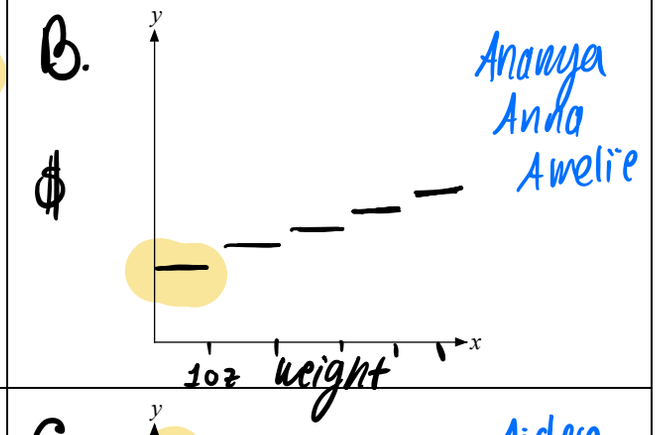


B: Letter

When sending a letter, you pay quite a lot for letters weighing up to an ounce. You then pay a smaller, fixed amount for each additional ounce (or part of an ounce.)

x = the weight of the letter in ounces.

y = the cost of sending the letter in cents.



C: Bus

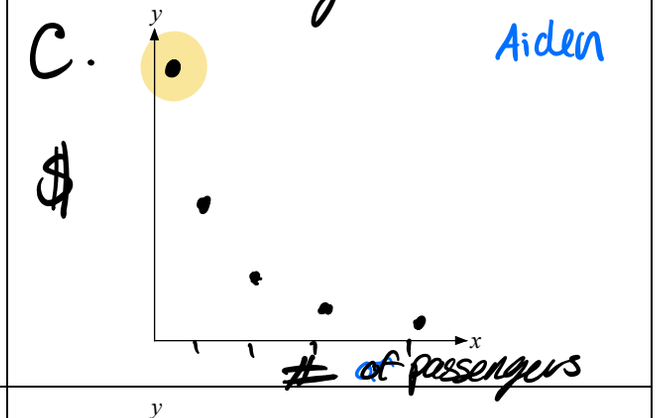
A group of people rent a bus for a day. The total cost of the bus is shared equally among the passengers.

$100

x = the number of passengers.

y = the cost for each passenger in dollars.

$\frac{x}{2} = y$ discrete $\frac{100}{x} = y$



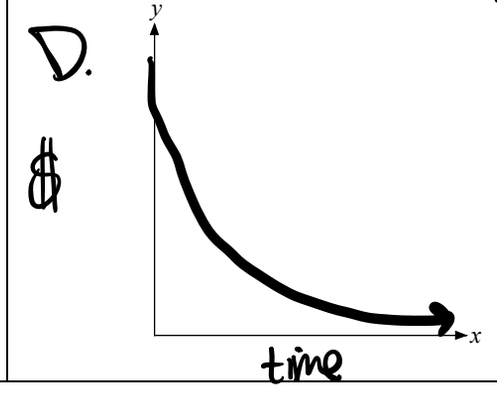
D: Car value

My car loses about half of its value each year.

x = the time that has elapsed in years.

y = the value of my car in dollars.

continuous

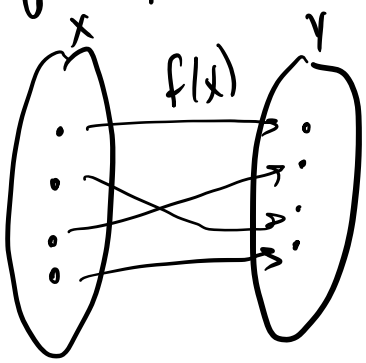


Function

↳ change?

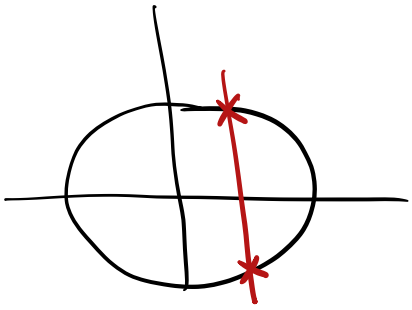
↳ input, output, linear lines

D1 A function is a relation where every input has one output.



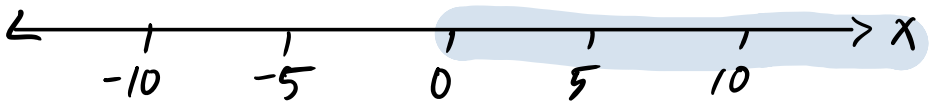
example: linear function (line)

nonexamples: circle, elipse,



Features of functions

D2 the <u>domain</u> is the set of allowable values that can go to the input of a function!

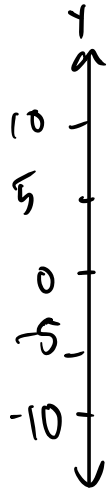


time is just positive.

$(-\infty, \infty)$ ← exclusive

inclusive → $[0, \infty)$

D3 the range is the set of output values. (y-values)



D4 the y-intercept
↳ value where we cross the y-axis

→ algebraically happens when $x=0$

D5 the x-intercept(s)
values where we cross the x-axis

→ algebraically happens when $y=0$