

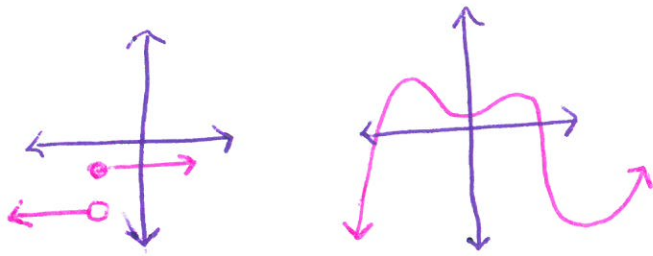
Chapter 1  
 Functions and Mathematical Models  
 Section 1-1 Functions

**Relation:** A set of points      **Domain:** the x coordinates      **Range:** the y coordinates

A **function** is a set of ordered pairs (points) where each x has only one y value (\*no x can repeat)

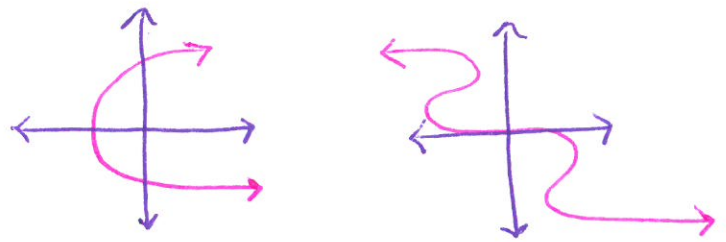
1. Draw 2 graphs that are functions and 2 graphs that are not functions.

Functions :



\* These pass the VLT.

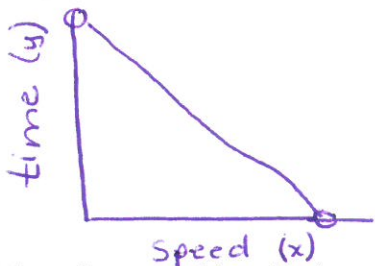
Not functions: (Relations)



\* These do not pass VLT.

2. The time it takes you to get home from school is related to how fast you drive. Sketch a reasonable graph showing how time and speed are related. Tell the domain and range of the function.

\* Doesn't state that one depends on the other, so either can go on x-axis



neither speed nor time = 0. Why?

Domain (x): (0, A/WV]  
 Range (y): (0, A/WV]

\*\* if time depends on speed, then time is dependent variable (the y-value) and speed is the ind. variable (the x-value)

\*\*\* vice versa if speed depends on time

Find the x-intercept(s) and y-intercept of the function. (use algebra or graphing calculator)

3.  $f(x) = x^2 - 2x - 8$

y int:  $f(x) = (0)^2 - 2(0) - 8$        $y = -8$

x int:  $0 = x^2 - 2x - 8$   
 $0 = (x-4)(x+2)$   
 $x = 4 \quad x = -2$

ON CALC:

y int: ① graph eq., set  $x=0$

x int: ①  $y_1 =$  equation  $y_2 = 0$   
 ② find intersection(s)