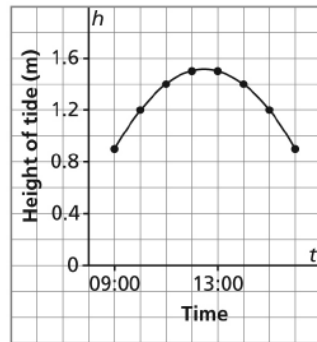**WARM UP:** This graph shows the approximate height of the tide, h metres, as a function of time, t, at Port Clements, Haida Gwaii on June 17, 2009.

Height of Tide at Port Clements, June 17, 2009

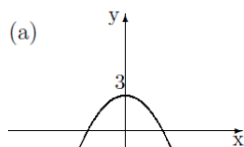height   time   Height depends on time

a) Identify the dependent variable and the independent variable. Justify your choices.
b) Why are the points on the graph connected? Explain. $\in R$
c) Determine the domain and range of the graph.

$$D = \{ t \mid 9{:}00 \le t \le 16{:}00, t \in R \}$$

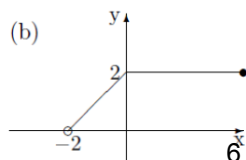$$R = \{ h \mid 0.9 \le h \le 1.5, h \in R \}$$

Review of domain and range...

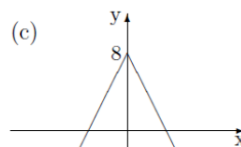Find the domain and range of the following functions from the graph. Use correct set notation

(a)

$$D = \{ x \mid x \in R \}$$
$$R = \{ y \mid y \le 3, y \in R \}$$

(b)

$$D = \{ x \mid -2 < x \le 6, x \in R \}$$
$$R = \{ y \mid 0 < y \le 2, y \in R \}$$

(c)

$$D = \{ x \mid x \in R \}$$
$$R = \{ y \mid y \le 8, y \in R \}$$
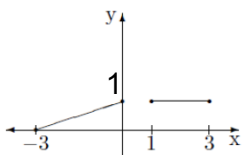
$$D = \{ x \mid -3 \le x \le 0 \text{ and } 1 \le x \le 3, x \in R \}$$
$$R = \{ y \mid 0 \le y \le 1, y \in R \}$$

$g(x)$

$$D = \{ x \mid -1 \le x < 1, x \in R \}$$
$$R = \{ y \mid -1 \le y < 1, y \in R \}$$

$f(x) = -\frac{1}{x}$

$$D = \{ x \mid x \ne 0, x \in R \}$$
$$R = \{ y \mid y \ne 0, y \in R \}$$

1
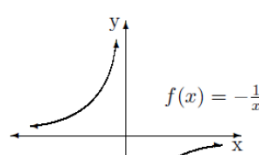
CONSTRUCTING GRAPHS...

- x axis (horizontal) & y axis (vertical)

- picking a scale for each axis (look at data)

- writing scales on axis and labels with units

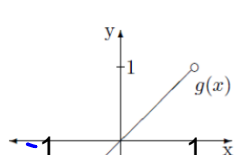   * may want to 'break the graph'

- plot the data

- decide on discrete (dots) or continuous

WORK ON THESE...get a ruler/graph paper!

- today you will graphing...graph paper and rulers are up front (if needed).

- questions from last night's practice problems will be discussed Monday.

- work on the following questions from the textbook...

PRACTICE PROBLEMS:

     p. 286: #1 & 2

     p. 296: #14, 15, 17, 19,

           #20, 22, 23, 24

  * Finish for Homework!!!

REVIEW - Relations & Functions

- representing relations through...

  1) words   2) table   3) arrow diagram

  4) coordinate pairs   5) graph   6) equation

- desciribing the DOMAIN { x values } and RANGE { y values }

- identifying a FUNCTION (each x value has one and only one y value)

  * vertical line test... intersects more than one point - NOT a function

- INDEPENDENT (x variable) versus DEPENDENT (y variable)

- Function Notation... f(x) - same as the y variable (y is a function of x)

    ex: $f(x) = 3x + 1$ a) $f(-4) =$

      $g(x) = -2x - 4$ b) find x when $f(x) = 32$

                c) find $f(g(-2)) =$

- Interpreting graphs...'telling the story' and answering questions.

    * must know how to read a distance/time graph

- DISCRETE (counting/gaps... use dots) versus

    CONTINUOUS (flows/no gaps...use lines/curves)

- Graphing...building the axis, picking a scale, plotting points and graph!

REVIEW QUESTIONS...

  * READ the study guide on p. 324 - 325

  * PRACTICE from p. 326: #1 - 12

  * PRACTICE TEST:

    All questions except 5e & 5f