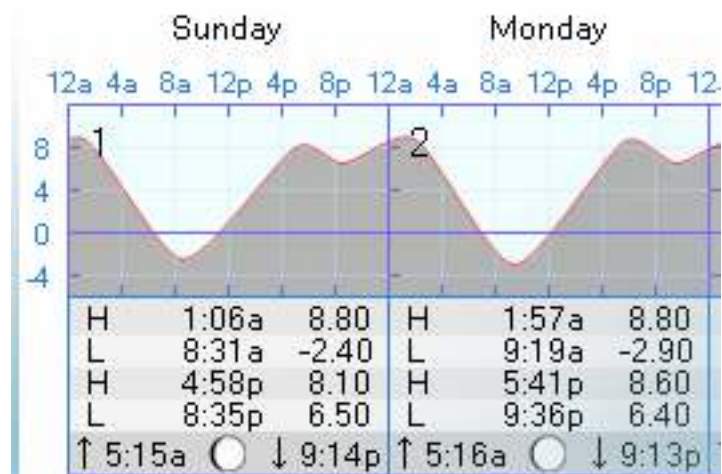


M48C/Schoenbrun Section 8.1: Periodic Functions

Below is a graph of a tide chart:



Questions:

1. Is tide a function of time? Describe how you know.

Yes, because it changes with time.

2. Determine if the tide function, $H(t)$, appears to be **periodic** in nature. How do you know?

Yes, because it repeats.

3. What is the **period** of the tide function?

12 hours

4. What is the **frequency** of the tide function?

1/12 Cycles/hour

5. What is the **amplitude** of the tide function?

$$\text{Amplitude} \approx \frac{8.2 - (-2.4)}{2} = 5.2$$

6. What is the **range** of the tide function?

[-2.4, 8.2]

7. What is the **midline** of the function?

$$\text{Midline} \approx \frac{8.2 + (-2.4)}{2} = 2.9$$

Here is a table of data:

X	0	1	2	3	4	5	6	7	8	9	10
Y	2	10	14	2	10	14	2	10	14	2	10

1. Is Y a function of X? Describe how you know.

It passes the vertical line test.

2. Determine if the function $Y(X)$, is periodic in nature. How do you know?

The sequence 2,10,14 repeats

3. What is the period of Y?

3

4. What is the frequency of Y? If X has the units of seconds, what does the frequency tell us?

1/3

5. What is the amplitude of Y?

$$\text{Amplitude} = \frac{14-2}{2} = 6$$

6. What is the range of Y?

{2, 10, 14}

7. What is the midline of the function?

$$\text{Midline} = \frac{14+2}{8} = 6$$