

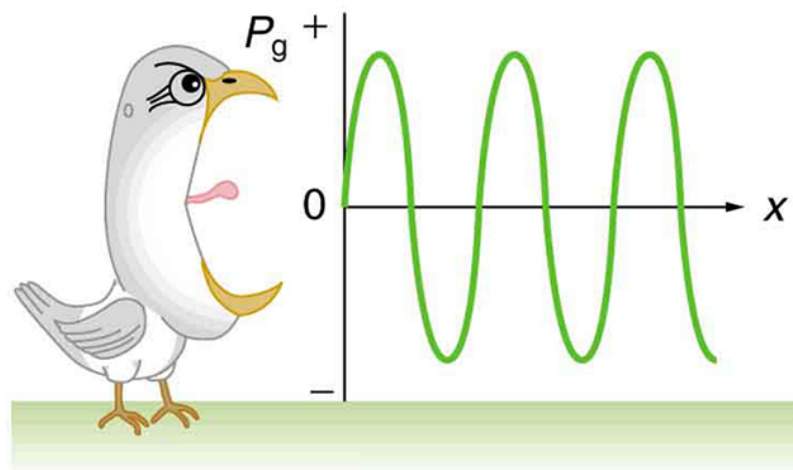
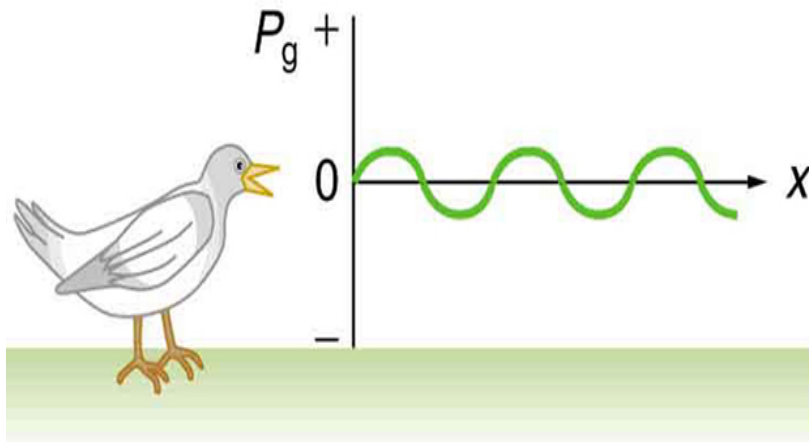
## Wave Functions

### Main points on our wave:

- **Maximum** - The highest *point* of the function.
- **Minimum** - The lowest *point* of the function.
- **Midline** - The horizontal axis that is used as the reference *line* about which the function oscillates (continually goes around).
- **Amplitude** - The *distance* from the midline to the maximum or minimum.

You try:

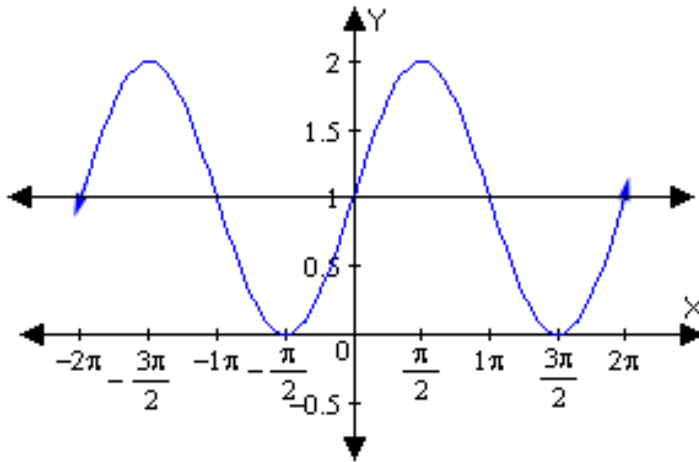
Label a, b, c, and d as the maximum, minimum, or midline.



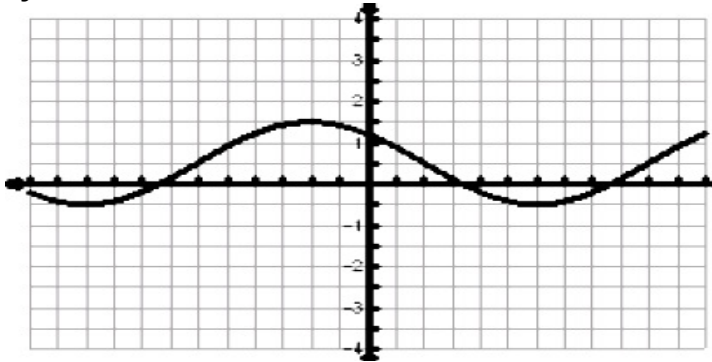
- Which figure has a larger amplitude? Why?

Day 1

**Example #1: Find the max, min, midline, and amplitude.**



**You try: Find the max, min, midline, and amplitude.**



The period of a wave function is the length of one cycle.

The frequency is the number of cycles in a given unit of time.

To relate period and frequency, we use " $pb=2\pi$ "

"Peanut Butter Equals  $2\pi$ "

\*\*  $b$  is the commonly used letter for frequency.

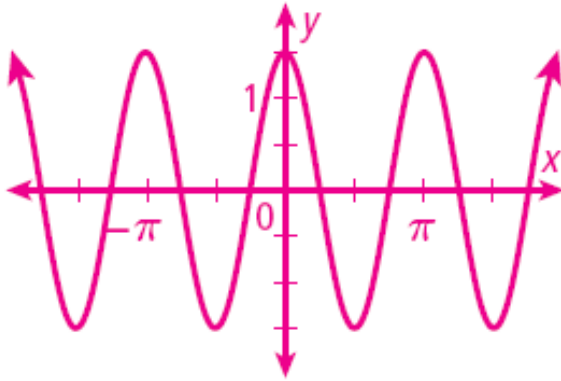
\*\*  $p$  is the commonly used letter for period.

To visually identify the period, there are 4 options:

1. Calculate the distance between two maxima
2. Calculate the distance between two minima
3. Calculate the distance between a max and a min and then double it
4. Calculate the distance between 3 midline values

Day 1

**Example #2: Find the period and frequency of the graph**



**Example #3:**

**Find the period, frequency, max, min, and amplitude.**

