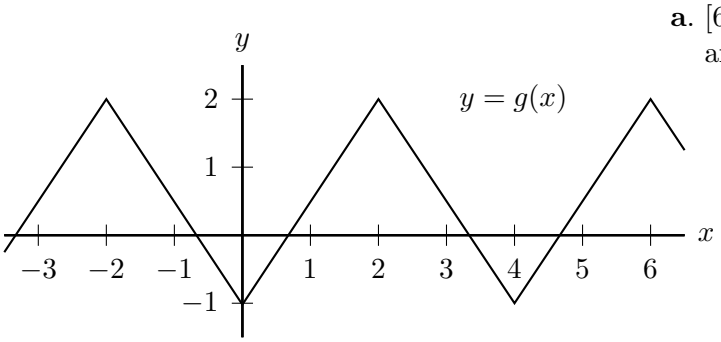
1. [8 points] *Note: You do not need to show any work for this problem.*
The graph of a periodic function g is shown below.



a. [6 points] Find the period, amplitude, and equation of the midline of $y = g(x)$.

Period: 4

Amplitude: 1.5

Midline: $y = 0.5$

b. [2 points] Based on the graph shown above, does the function g appear to be even, odd, neither even nor odd, or both even and odd? *Circle the* ONE *best answer.*

○ [even] ○ odd ○ neither even nor odd ○ both even and odd

2. [7 points] *Note: You do not need to explain your reasoning for this problem.*

Paula Panda loves sleeping and relaxing on a bed of leaves. Let $P(d)$ be the number of leaves in Paula's sleeping area at noon d days after January 1, 2013.

a. [2 points] Paula's younger brother Red copies his big sister. Each day, he counts the number of leaves in Paula's sleeping area and then makes sure that he has that same number of leaves in his sleeping area the very next day. Let $R(d)$ be the number of leaves in Red's sleeping area at noon d days after January 1, 2013.
Find a formula for $R(d)$ in terms of P and d.

Solution: On day d, Red will have the number of leaves in his area as Paula had the previous day, which was day $d-1$. So $R(d) = P(d-1)$.

Answer: $R(d) =$ $P(d-1)$

b. [2 points] Paula's cousin Carrie prefers an extra thick layer of leaves. She always makes sure that she has seven more than twice as many leaves as Paula does on the same day. Let $C(d)$ be the number of leaves in Carrie's sleeping area at noon d days after January 1, 2013. Find a formula for $C(d)$ in terms of P and d.

Solution: On day d, Paula has $P(d)$ leaves, so Carrie has $7 + 2P(d)$ leaves.

Answer: $C(d) =$ $7 + 2P(d)$

c. [3 points] Let $L(w)$ be the number of hundreds of leaves in Paula's sleeping area w weeks after January 1, 2013. Find a formula for $L(w)$ in terms of P and w.

Solution: w weeks is equal to $7w$ days, so $P(7w)$ is the number of leaves in Paula's sleeping after w weeks. Dividing this by 100 will give the number of hundreds of leaves.

Answer: $L(w) =$ $\frac{P(7w)}{100}$ **or** $0.01P(7w)$