3. [12 points] Oakley gets exercise every day in one of two ways: either by walking outside, or following instructions from an exercise app.

- $f(d)$ is the amount of time, in minutes, it takes Oakley to walk $d$ miles.
- $f(d)$ is invertible.
- $W(t)$ is Oakley's heart rate, in beats per minutes, $t$ minutes after they start walking.
- $A(t)$ is Oakley's heart rate, in beats per minutes, $t$ minutes after they start using the exercise app.
a. [8 points] For each of the following, give a practical interpretation of the given expression, or explain why the expression does not make sense in the context of the problem.
i. $f^{-1}(5)$
ii. $W(f(1.5))=95$
iii. $W(40)<A(20)$
b. [4 points] Find an expression for Oakley's average speed, in miles per hour, when Oakley has walked a total of $d$ miles. Your answer may involve $f, W$, and/or $A$.

4. [10 points] The plot below shows a graph of $y=B(t)$, the height in feet of a buoy floating in the ocean $t$ minutes after 6 am .


Use the graph to answer the following questions:
a. [2 points] What is the period of $B(t)$ ? Include units.
b. [3 points] For each of the following transformations, write down if the the function is even, odd, or neither.
i. $B(t-7.5)+1$.
ii. $-B(t)+2.25$.
iii. $B(-t)$.
c. [5 points] Let $G(h)$ be the function telling you the height in inches, at time $h$ hours after 8 am . Write a formula for $G(h)$ in terms of $B$. (Recall that there are 12 inches in one foot.)

