5. [8 points] The graph of the function $f$ defined on the domain $[0,4]$ is drawn below.

\[ y = f(x) \]

\[ y = f^{-1}(x) \]

a. [4 points] Using the axis above (labelled “$y = f^{-1}(x)$”), sketch the graph $y = f^{-1}(x)$.

b. [4 points] Write down a piecewise formula for the function $f$.

\[
    f(x) = \begin{cases} 
        2x & 0 \leq x < 1, \\
        4 - \frac{2}{3}(x - 1) & 1 \leq x \leq 4. 
    \end{cases}
\]

6. [6 points] Let $g$ be a function defined on the real line. Some values of $g$ are shown below.

<table>
<thead>
<tr>
<th>$x$</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>$g(x)$</td>
<td>0</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

a. [2 points] If $g$ were an odd function, what should the value of $g(-1)$ be?

\[
    Solution: \quad g(-1) = -g(1) = -5
\]

b. [2 points] If $g$ were a periodic function of period 5, what should the value of $g(-3)$ be?

\[
    Solution: \quad g(-3) = g(-3 + 5) = g(2) = 6
\]

c. [2 points] Let $k$ be the function defined by $k(x) = g(2x + 5)$. What is $k(-1)$?

\[
    Solution: \quad k(-1) = g(2(-1) + 5) = g(3) = 7.
\]