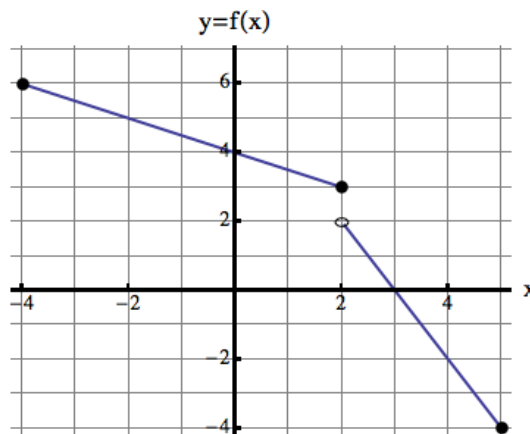1. [13 points] Consider the functions $f(x)$ and $g(x)$, where $g(x) = 2 - \dfrac{1}{2}x$ and the graph of $y = f(x)$ is shown below.

y=f(x)

a. [9 points]

    i) Compute the value of the following expressions. Write "Undefined" if the value of the expression is not defined or there is not enough information to be computed.

        $2f(-2) + 3f(4) =$ _____ $f^{-1}(3) =$ _____ .

        $f(g(2)) =$ _____ $g(g^{-1}(5)) =$ _____ ..

    ii) Find the horizontal and vertical intercepts of the function $y = f(g(x))$.

        Horizontal intercept(s): _____   Vertical intercept: _____ .

    iii) Find the average rate of change of $f(x)$ between $x = 2$ and $x = 5$. Show your work.

                                     Answer: _____

b. [4 points] Find a piecewise defined formula for $f(x)$.

$$f(x) = \begin{cases} \underline{\hspace{5cm}} & \underline{\hspace{2cm}} \\ \\ \underline{\hspace{5cm}} & \underline{\hspace{2cm}} \end{cases}$$