

6. [11 points]

- a. [2 points] If the range of the function  $y = H(x)$  is  $(-4, 3]$ , what should be the range of the function  $G(x) = H(x + 10) - 20$ ? Write your answer using interval notation or inequalities.

Answer: \_\_\_\_\_.

- b. [3 points] Find the domain of the function

$$k(x) = \frac{100}{\sqrt{1 - 2x}}$$

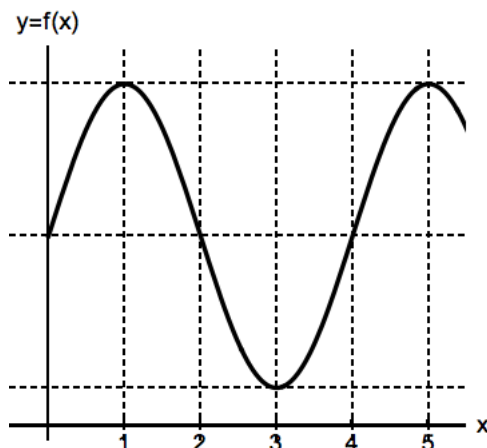
Write your answer using interval notation or inequalities. Show all your work.

Answer: \_\_\_\_\_.

- c. [4 points] Find the equation of the linear function  $f(x)$  that has an  $x$ -intercept at 3, and is perpendicular to the line  $4x - 3y = 1$ . Show all your work.

$f(x) =$  \_\_\_\_\_.

- d. [2 points] The graph of the function  $f(x)$  is given below. In which interval is the value of the average rate of change of  $f(x)$  the largest? Circle your answer.



i) On  $0 \leq x \leq 4$

ii) On  $1 \leq x \leq 3$

iii) On  $3 \leq x \leq 5$

iv) On  $2 \leq x \leq 5$