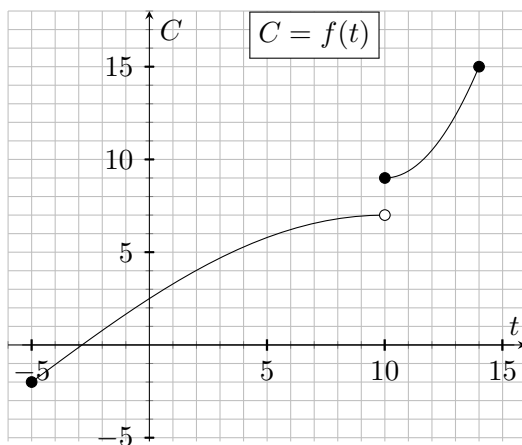


3. [10 points] Let  $C = f(t)$  be a piecewise-defined and invertible function for  $-5 \leq t \leq 14$ . Below is given the graph of  $f$ .  
 Note that  $f$  is concave down on  $[-5,10)$  and concave up on  $[10,14]$ .



- a. [5 points] Fill in the blanks:  
 i. [2 points] Give the range of  $f$  using **interval notation**: \_\_\_\_\_.

Note that part ii is about  $f^{-1}$ , **NOT**  $f$ . You may estimate your answer if needed.

- ii. [3 points] The average rate of change of  $f^{-1}$  on  $[4,6]$  is  $\approx$  \_\_\_\_\_.
- b. [5 points] Let  $g(t) = -f(0.4t + 5)$ .

- i. [3 points] Find the domain of  $g$ . Give your answer using interval notation:

Domain of  $g$ : \_\_\_\_\_

- ii. [2 points] Circle **only one** of the four options listed below to complete the following sentence:

On the interval  $[-8,-5]$  the function  $g$  is ...

- |                                     |                                     |
|-------------------------------------|-------------------------------------|
| <i>increasing and concave up.</i>   | <i>decreasing and concave up.</i>   |
| <i>decreasing and concave down.</i> | <i>increasing and concave down.</i> |