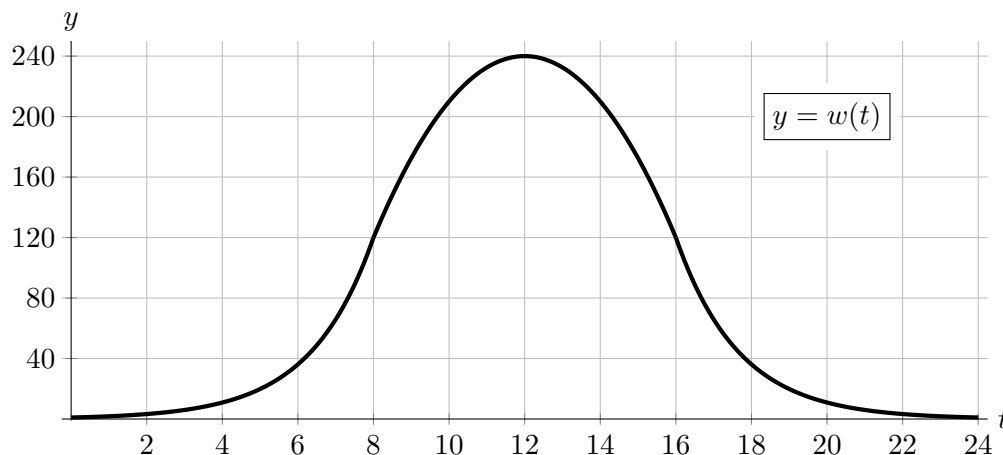


5. [10 points] Suppose that the function  $w(t)$  shown in the graph below models the power, in kilowatts, that is harvested at a particular solar panel installation in northern Norway at time  $t$ , where  $t$  is measured in hours after midnight on a typical summer day.



Consider the function  $W$  defined by

$$W(x) = \int_{2x}^{2x+4} w(t) dt.$$

*Be sure to show your work very carefully on all parts of this problem.*

- a. [3 points] Estimate  $W(4)$ . In the context of this problem, what are the units on  $W(4)$ ?

**Answer:**  $W(4) \approx$  \_\_\_\_\_ **Units:** \_\_\_\_\_

- b. [4 points] Estimate  $W'(4)$ . In the context of this problem, what are the units on  $W'(4)$ ?

**Answer:**  $W'(4) \approx$  \_\_\_\_\_ **Units:** \_\_\_\_\_

- c. [3 points] Estimate the value(s) of  $x$  at which  $W(x)$  attains its maximum value on the interval  $0 \leq x \leq 8$ . If there are no such values, explain why.