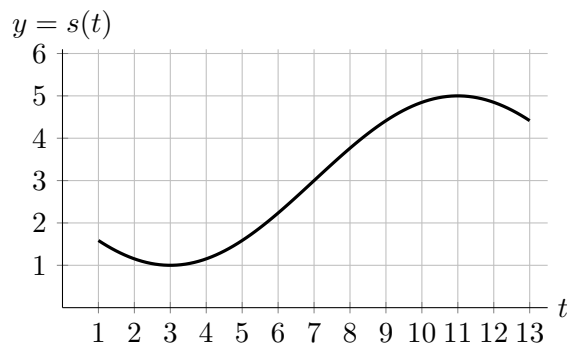


7. [10 points] An apple farmer wants to assess the damage done by a plague to the trees in his orchard. In order to do so, he installs cameras on a couple of small flying robots to film the damage done by the plague to the trees. Let  $f(t)$  and  $s(t)$  and be the height above the ground (in feet) of the first and second robot  $t$  seconds after they started recording.

- a. [5 points] Let  $f(t) = 4 - 3 \cos\left(\frac{\pi}{5}t - \frac{2\pi}{5}\right)$ . Find the time(s) at which the first robot is 6 feet above the ground for  $0 \leq t \leq 12$ . Your answer(s) should be *exact*. Show all your work.

**Answer:**  $t =$  \_\_\_\_\_

- b. [5 points] The graph of the sinusoidal function  $s(t)$  is shown below only for  $1 \leq t \leq 13$ . Find a formula for  $s(t)$ .



**Answer:**  $s(t) =$  \_\_\_\_\_