d. [3 points] Let $T(k)$ be the total revenue, in dollars of both Mia and Jonathan $k$ minutes after 9 am. Find a formula for $T(k)$ in terms of $M$ and/or $J$.

Solution: $T(k) = 100(M(k/60) + J(k/60)).$

5. [12 points] The graph of a sinusoidal function $y = K(t)$ is given below.

b. [5 points] Find the first three positive values of $t$ for which $K(t) = 7$. Give your answer in exact form.

Solution: We want to know when $3\sin((2\pi/6)t) + 5 = 7$.

Subtracting 5 from both sides, dividing by 3, and taking arcsin, we find

$$(2\pi/6)t = \arcsin(2/3)$$

which gives us

$$t = \frac{3}{\pi} \arcsin(2/3)$$

This is the first solution. We can find the second by using symmetries:

$$t = 3 - \frac{3}{\pi} \arcsin(2/3).$$

The third can be found by adding one period to the first solution:

$$t = 6 + \frac{3}{\pi} \arcsin(2/3).$$