6. [11 points] A company designs chambers whose interior temperature can be controlled. Their chambers come in two models: Model A and Model B.

a. [5 points] The temperature in Model A goes from its minimum temperature of $-3°$C to its maximum temperature of $15°$C and returning to its minimum temperature three times each day. The temperature of this chamber at 10 am is $15°$C. Let $A(t)$ be the temperature (in $°$C) inside this chamber t hours after midnight. Find a formula for $A(t)$ assuming it is a sinusoidal function.

Answer: $A(t) =$ _____

b. [6 points] Let $B(t)$ be the temperature (in $°C$) inside Model B t hours after midnight, where

$$B(t) = 5 - 3\cos\left(\frac{3}{7}t + 1\right).$$

Find the two smallest positive values of t at which the temperature in the chamber is $6°$C. Your answer must be found algebraically. *Show all your work and give your answers in exact form.*

Answer: $t =$ _____ and _____