7. [10 points] To aid in Elphaba’s escape, Walt has concocted a supplement that will make her stronger and more agile. The concentration of the supplement in Elphaba’s system, in mg/ml, \( t \) minutes after it is administered is given by the following formula:

\[
T(t) = \begin{cases} 
  at^3 & 0 \leq t \leq 5 \\
  b(t - 6)^2 + 10 & 5 < t \leq 7 
\end{cases}
\]

where \( a \) and \( b \) are constants.

a. [7 points] Given that \( T(t) \) is differentiable, find \( a \) and \( b \). Give your answers in exact form.

Answer: \( a = \) \( \) and \( b = \) \( \)

b. [3 points] Using the values of \( a \) and \( b \) you found in part (a), give a formula for the tangent line to the graph of \( y = T(t) \) at \( t = 5 \).

Answer: \( y = \) \( \)