Problem 88 (b) has been removed from HW4!
In addition, I do not believe there is enough information to properly solve part (a). This is because as \( x \) varies, clearly so do \( a \) and \( b \), that is \( a = a(x) \) and \( b = b(x) \). Thus we will modify the diagram for part (a) so it becomes:

\[ h \text{ and } k \text{ are constants}, \]

Only this point can move. All other vertices are fixed.

Hints:
1) \( \theta = (\theta + \phi) - \phi \)
2) \( \tan (\theta + \phi) = \frac{h}{x} \) \( \tan (\phi) = ? \)
3) \( \tan^{-1} \left( \frac{h}{x} \right) = \theta + \phi \) \( \tan^{-1} (?) = \phi \)

Your answer for \( \frac{d\theta}{dt} \) should only contain: \( x \), \( h \), \( k \) and \( \frac{dx}{dt} \).