1. Find an equation of the tangent line to the curve $x^2 + xy + y^2 = 7$ at the point $(3, -2)$.

2. You are on a ferris wheel. When the wheel rotates, your height above the ground at time $t$ minutes is given by the sinusoidal function
   \[ h(t) = 10 \sin \left( \frac{\pi}{2} (t - 1) \right) \text{ meters} \]
   (a) Where are you initially located (at time $t = 0$)?
   
   (a) Find the vertical velocity $h'(t)$ and vertical acceleration $h''(t)$. What is the maximal vertical velocity? When does it happen?