3. [13 points] O-guk’s playful son, O-ghan, is running on the $xy$-plane. His position $t$ seconds after he begins running is

$$x = \sqrt{t} - 1 \quad y = \sin(t) + 1.$$

Assume $x$ and $y$ are in meters.


b. [4 points] How fast is O-ghan running at $t = 5$? Give your answer in exact form (i.e. no decimal approximations). Include units.

c. [6 points] Find an equation, in $xy$-coordinates, of the tangent line to his path at $t = 1$. 