9. The blades of a wind turbine are turning at a steady rate. The height, \( h \) metres, of the tip of one of the blades above the ground at time, \( t \) seconds, is given by the formula

\[
h = 36\sin(1.5t) - 15\cos(1.5t) + 65.
\]

Express \( 36\sin(1.5t) - 15\cos(1.5t) \) in the form

\[
ksin(1.5t - a), \text{ where } k > 0 \text{ and } 0 < a < \frac{\pi}{2},
\]

and hence find the two values of \( t \) for which the tip of this blade is at a height of 100 metres above the ground during the first turn.

**Answers**

\[
h = 39 \sin(1.5t - 0.395) + 65
\]

\[
t = 1.006 \quad \text{and} \quad 1.615
\]