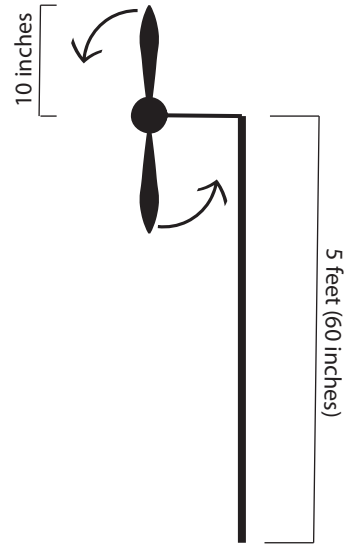
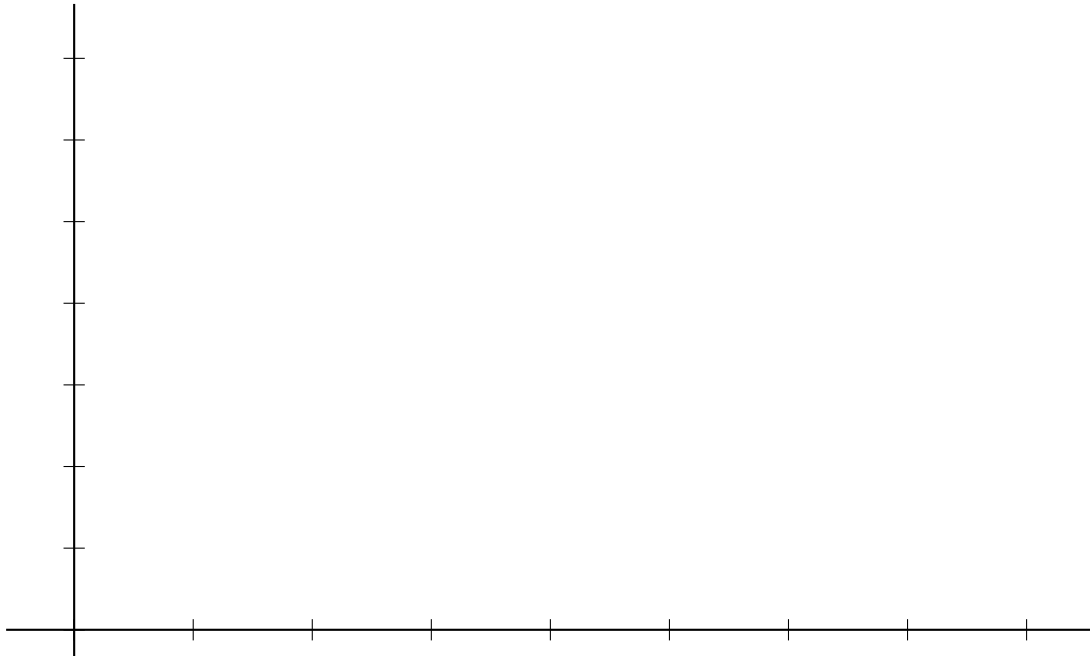


7. [10 points] A “Whirlydoodle”¹ is a small windmill that spins and lights up when the wind blows. One evening, there is a light breeze and a particular Whirlydoodle’s blades are rotating at a constant rate of one revolution every 4 seconds. A moth lands on the tip of one of the blades of the Whirlydoodle when the blade is pointed straight up. (The moth then hangs on and rides for a minute.) This Whirlydoodle is mounted 5 feet (60 inches) above the ground, and each blade is 10 inches long, as shown in the diagram on the right.



Let $h(t)$ be the height (in inches) of the moth above the ground t seconds after the moth lands on the Whirlydoodle.

- a. [6 points] Sketch a graph of $y = h(t)$ for $0 \leq t \leq 8$. (Remember to label the axes (including units) and to make sure that the key features and characteristics of your graph are clear.)



- b. [4 points] Find a formula for $h(t)$.

Answer: $h(t) =$ _____

¹“Whirlydoodles” can be seen around downtown Ann Arbor.