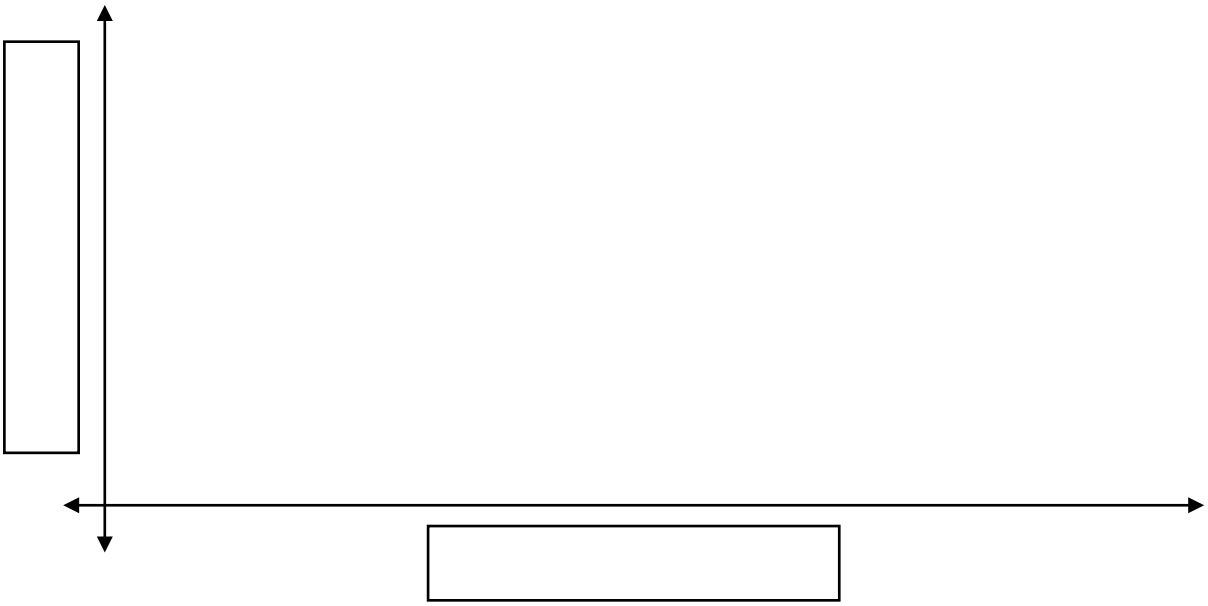
Dr. FitzWhiskers is floating on a tube in a wave pool. At t = 1 second, DR. F reaches a maximum height of 14m above the bottom of the pool. At t = 9 seconds, DR. F reaches a minimum height of 2m above the bottom of the pool

a) Sketch a graph below which expresses DR. F's height from the bottom of the pool with respect to time.



b) What is the equation (in terms of sine or cosine), which represents DR. F's motion?

$$f(x) = A\ \text{"trig"}\ (Bx - C) + D$$

trig: _____

A = _____ B = _____

C = _____ D = _____

Final Build: _____

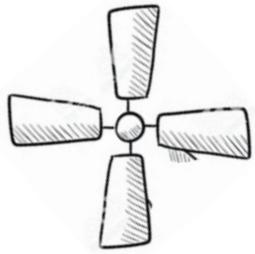
c) What is DR. F's height from the bottom of the pool at 21 seconds? (Use Calc Here)

d) At what times is Dr. F 10 feet above the bottom of the pool? (Use Calc Here)

Precalc Trigonometric Graphing Applications

A windmill in HAMSTER TOWN USA spins around in a counter-clock wise direction. The bottom of the blades tips of the windmill are 96 feet above the ground and when they spin around they are 328 feet above the ground. The blades spin in a circular fashion at a rate of 2 rotations per minute. The blade that you are tracking starts at the very BOTTOM. Given the information above, do the following below.

Make a sketch of the scenario.



Based on the sketch and the information, write a trigonometric function that models the height (FEET) of the tip of a single blade with respect to time (SECONDs). REMEMBER The blade that you are tracking starts at the very BOTTOM.

$f(x) = A\ \text{"}trig\text{"}\ (Bx - C) + D$

trig: _____

A = _____ B = _____

C = _____ D = _____

Final Build: _____

Sketch the function below. Label the axis and other points of interest that will add clarity to your graph.

A hamster engineer needs some data. **Use** the work above to furnish her with what she asks

- What is the height of the tip of the blade after 3.75 seconds? Is the blade moving up or down at that point?

- When is does the tip of the blade reach 200 feet for the 5th time? Is the blade moving up or down at that time?