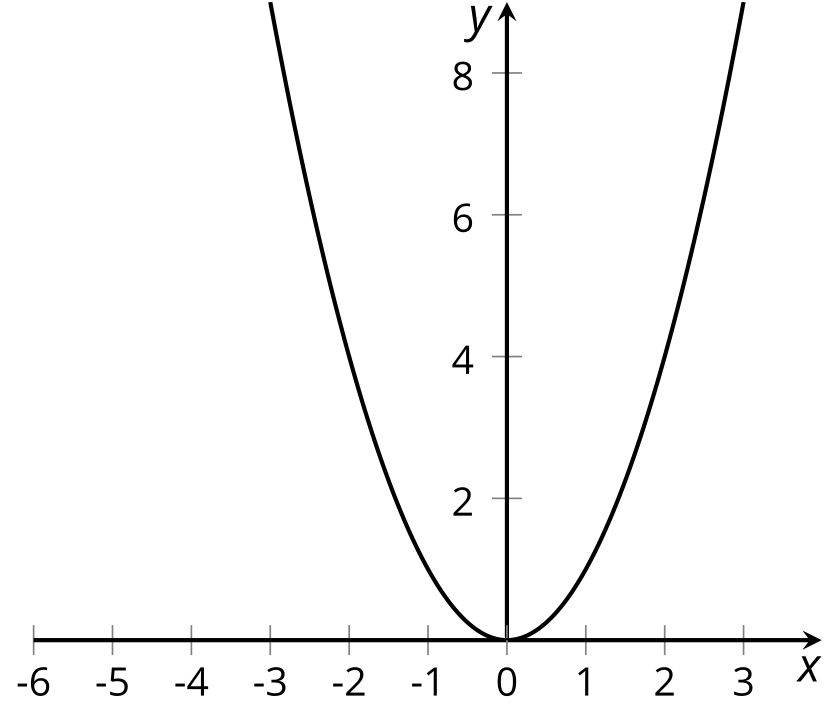
## Unit 6 Lesson 14: Transforming Trigonometric Functions

### 1 Translated Parabolas (Warm up)

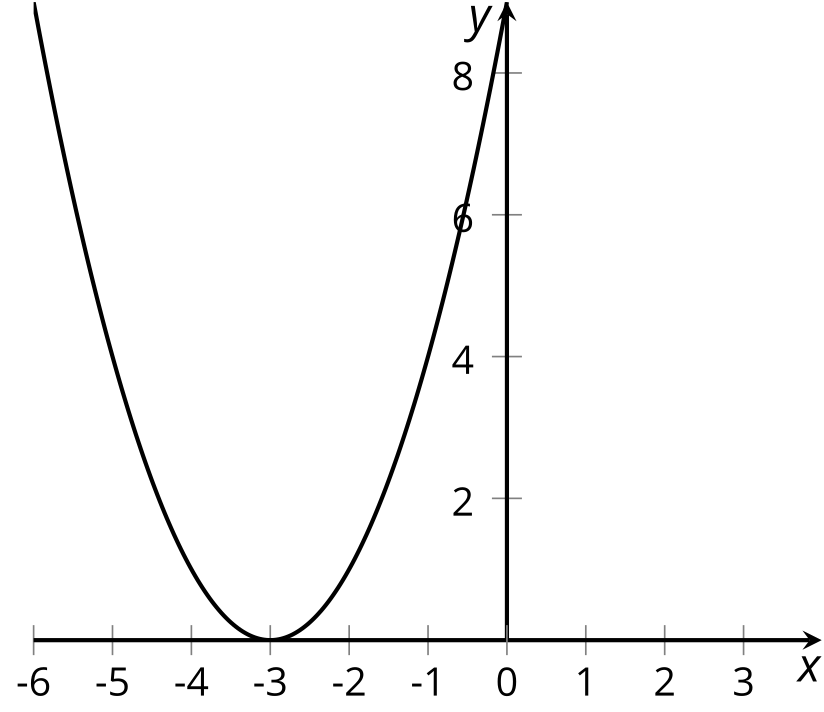
#### Student Task Statement

Match each equation with its graph. Be prepared to explain your reasoning.

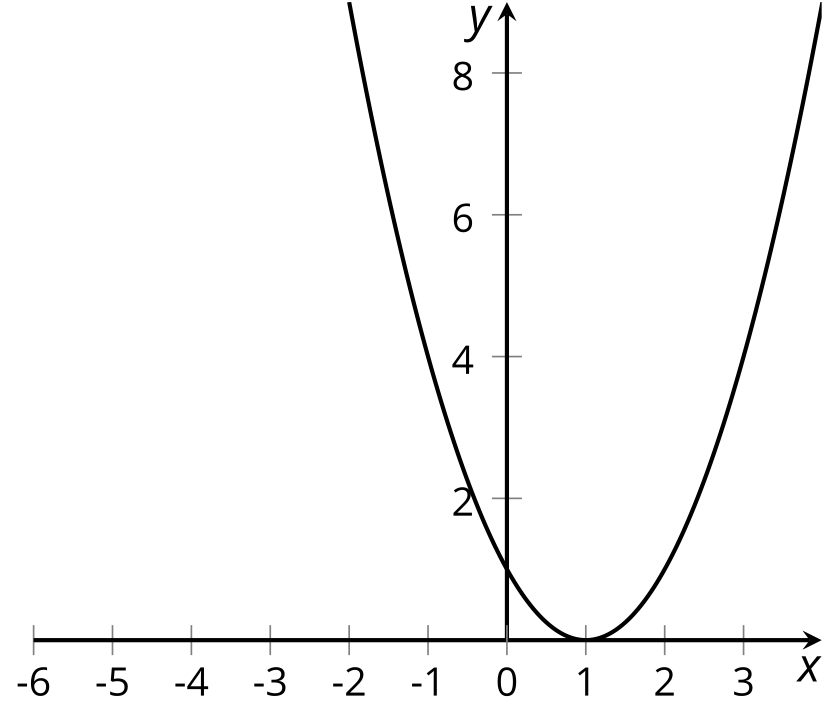
A



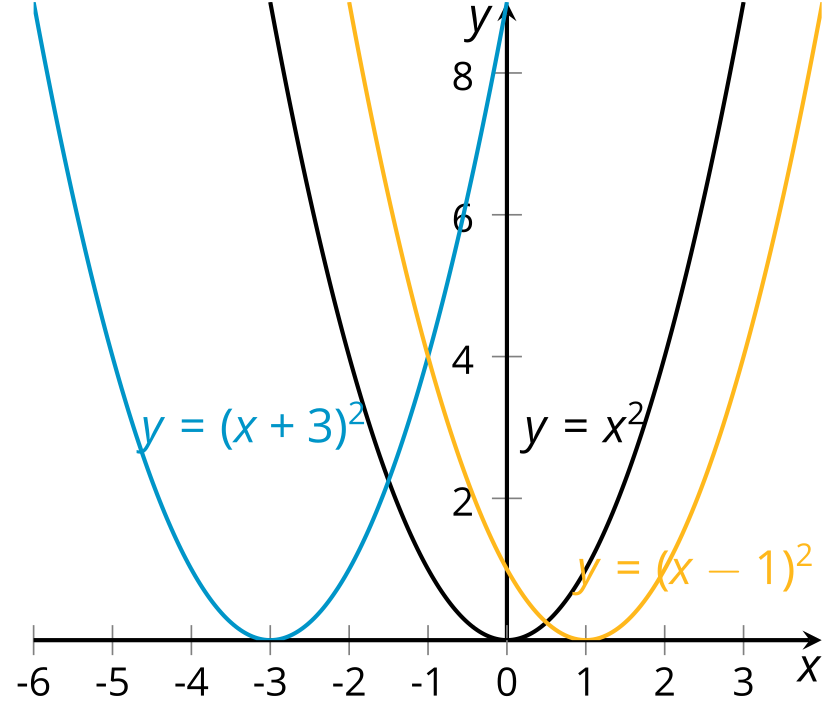
B



C

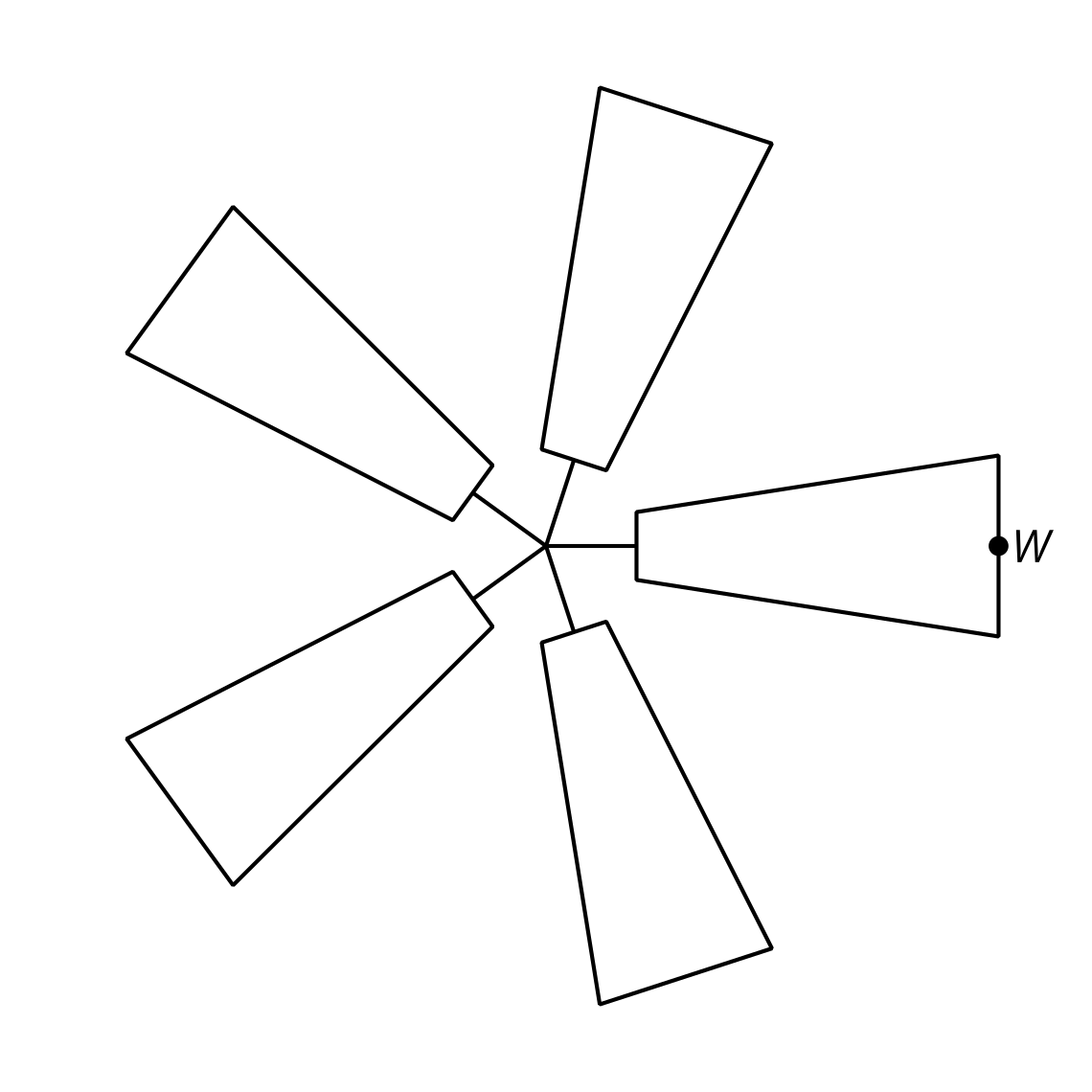


#### Activity Synthesis



### 2 Windmills Everywhere

#### Images for Launch



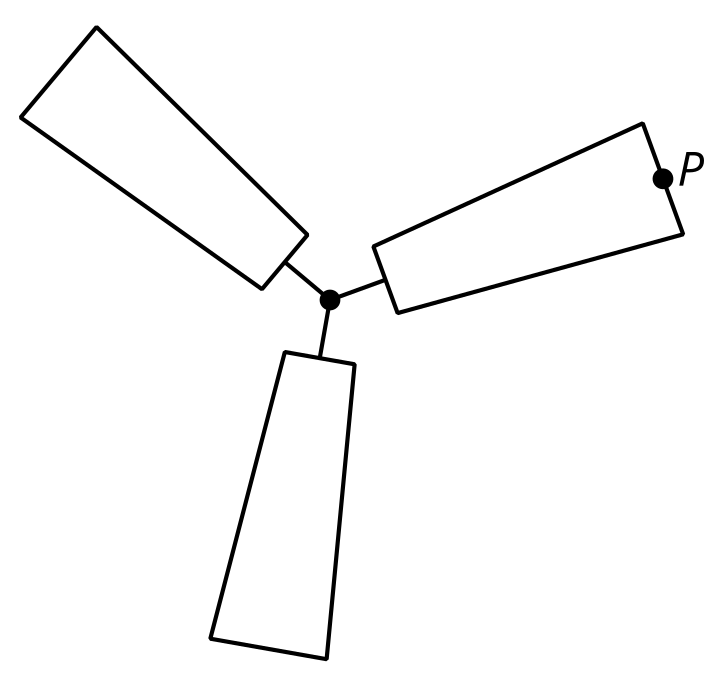
#### Student Task Statement

Here are three equations for three different windmills. Each equation describes the height , in feet above the ground, of a point at the tip of a blade of a different windmill. The point is at the far right when the angle takes the value 0. Describe each windmill and how it is spinning.

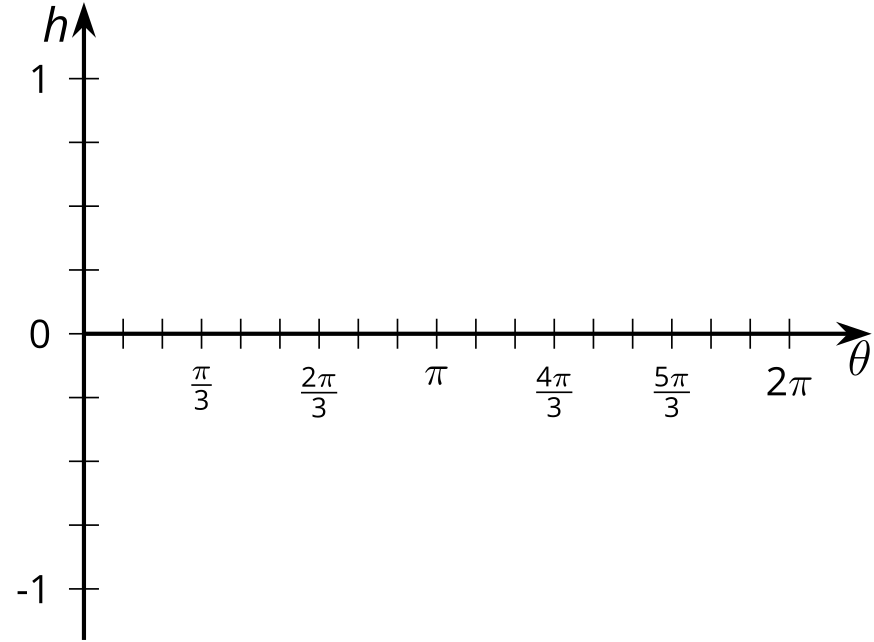
### 3 Spinning Fan

#### Student Task Statement

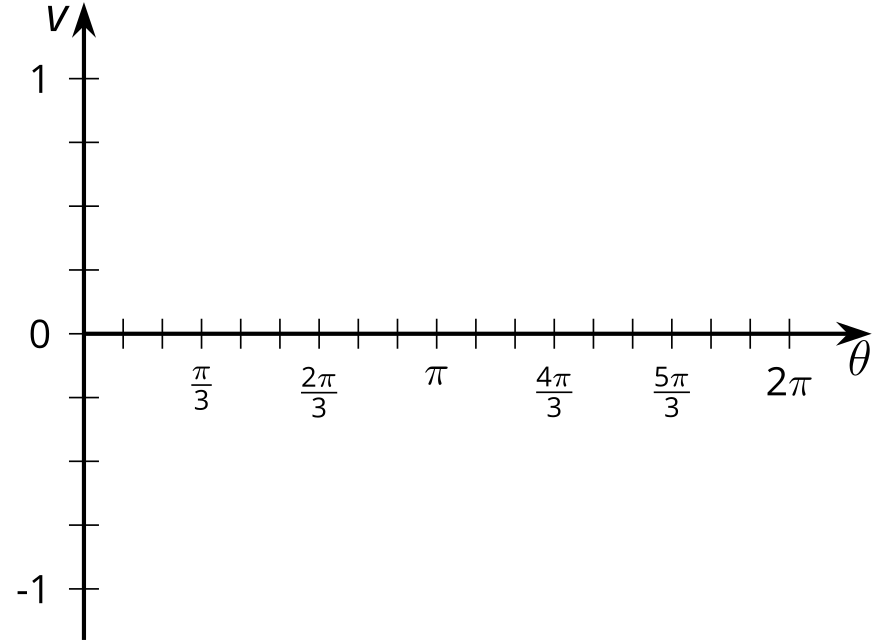
A fan has radius 1 foot. A point starts in the position shown in the picture. The center of the fan is at and the point is at the position on the circle. The fan turns in a counterclockwise direction.



1. Sketch a graph of the horizontal position , in feet, of as a function of the angle of rotation of the fan from its starting position.

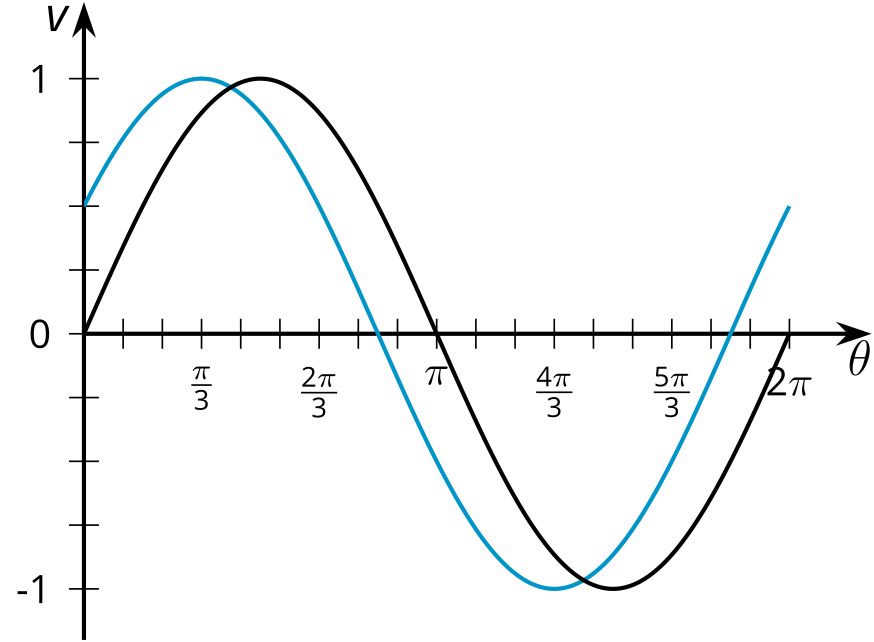
* 

1. How does this graph compare to the graph of ?
2. Sketch a graph of the vertical position , in feet, of as a function of the angle of rotation of the fan.

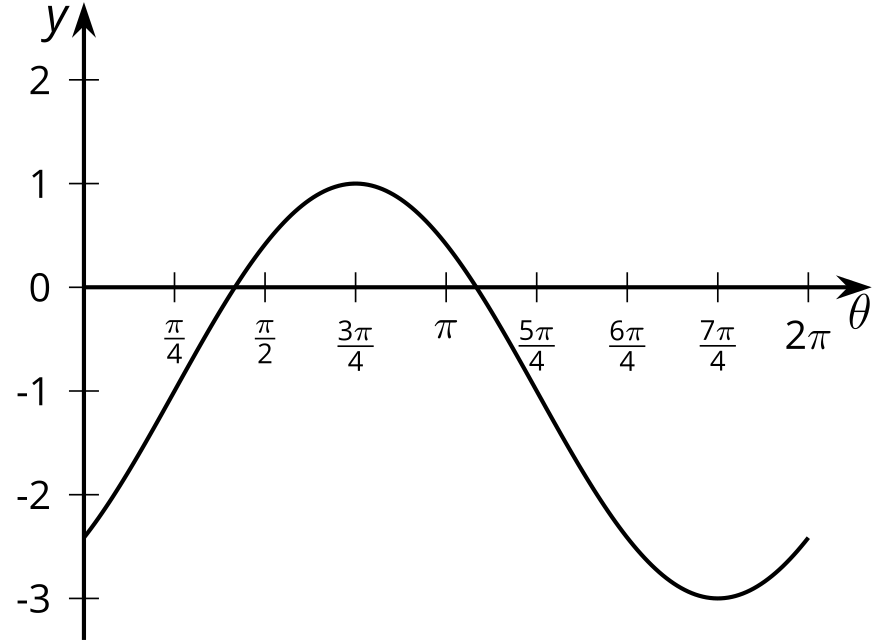
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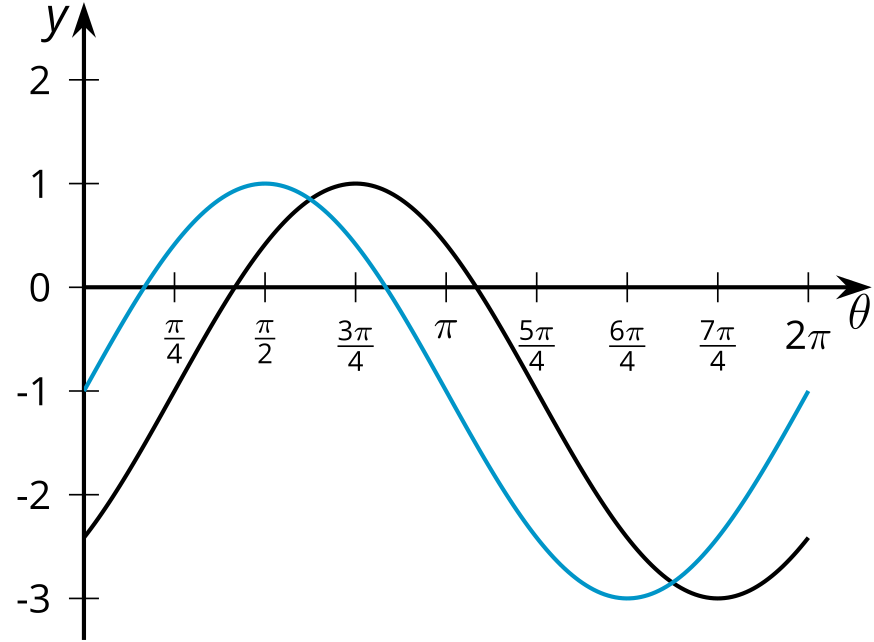
1. How does this graph compare to the graph of ?

#### Activity Synthesis



#### Images for Activity Synthesis







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