MRS21-HW#14

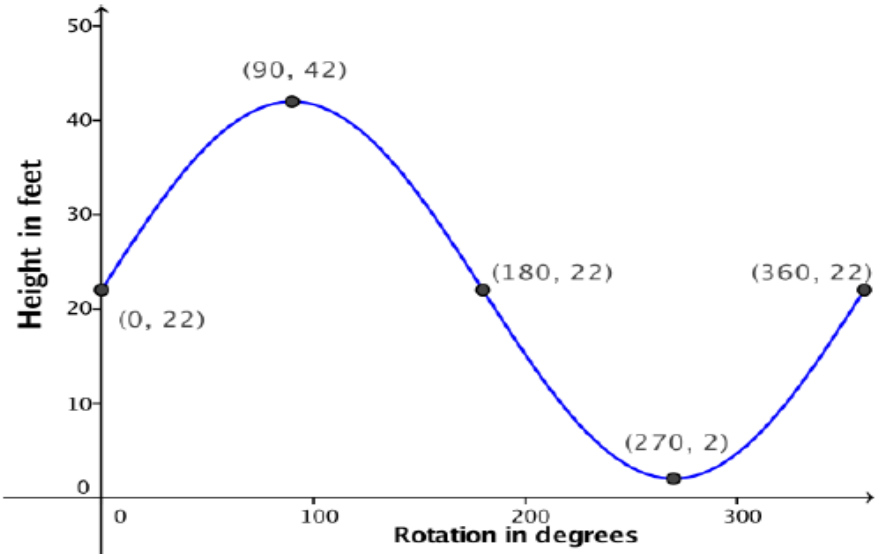
1)

The graph would repeat itself over another interval of 360 degrees. It would appear as if we attached a horizontal translation of the graph to the right end of the original graph.

2)

When we measured the height for every 15 degrees of rotation, the height was changing more rapidly at the far left and right positions of the wheel and more slowly near the top and bottom of the wheel. Equal increments of rotation did not result in a constant change in the height. If the function was piecewise linear, then equal changes in the rotation should have corresponded to equal changes in height in places.

3)



4)

The function's range would change to $[2, 62]$, and the graph's maximum value would be 62 instead of 42. The domain would stay the same, and the x-coordinates where the maximum and minimum values occurred would not change.

5)

The highest y-value on the graph would be 48 inches instead of 50 centimeters. The function's range would change to $[0, 48]$.

6)

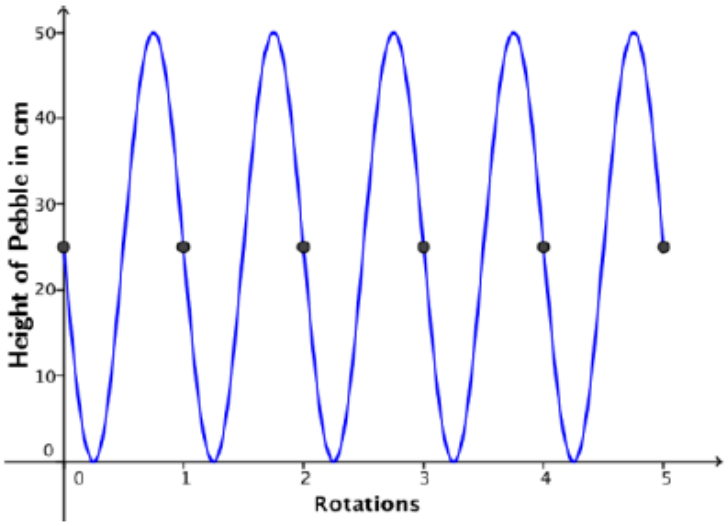
USE FOR QUESTION 1d

The domain is $[0, 360]$. The range is $[2, 42]$.

7)

The graph would increase to a height of 50 cm after $\frac{1}{4}$ of a turn and then decrease to a height of 0 after $\frac{3}{4}$ of a turn. While the domain and range of the function would remain the same, the actual correspondence between rotations and height would change since the direction of rotation is different.

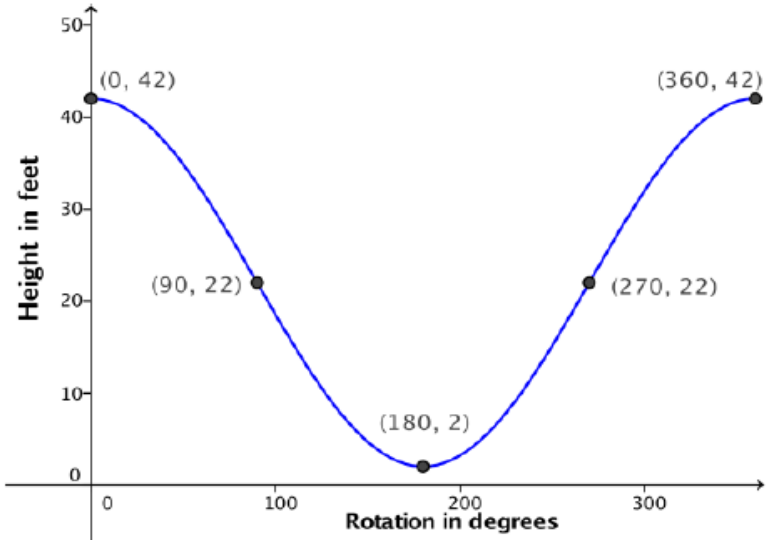
8)



9)

Assuming a counterclockwise rotation, a rotation of 0 *degrees would be paired with a height of* 0*, and then after* $\frac{1}{4}$ *of a turn, the height would be* 25 cm*. The domain and range of the function would not change, but the coordinates of the intercepts and maximum and minimum points would change.*

10)



11) USE FOR QUESTION 1c

The domain is $[0, 360]$*. The range is* $[2, 42]$*.*