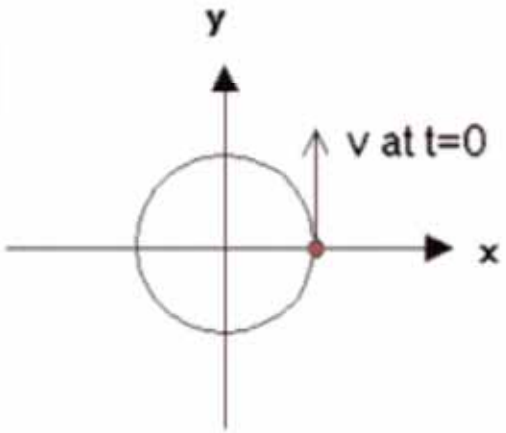
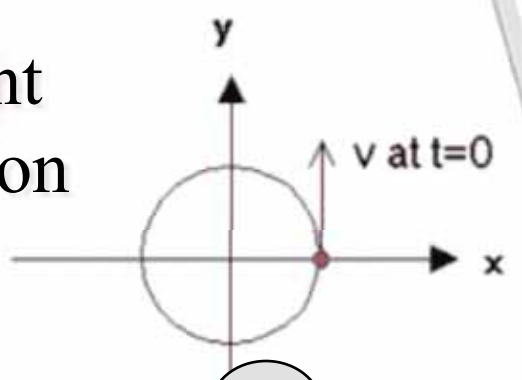
A boy is enjoying a ride on a merry-go-round riding a stationary horse rather than one that goes up and down. A schematic of the merry go-round as seen from above is shown. After the merry-go-round has started and is going uniformly, we start our clock. His position and velocity at time $t = 0$ is shown as a dot and arrow.

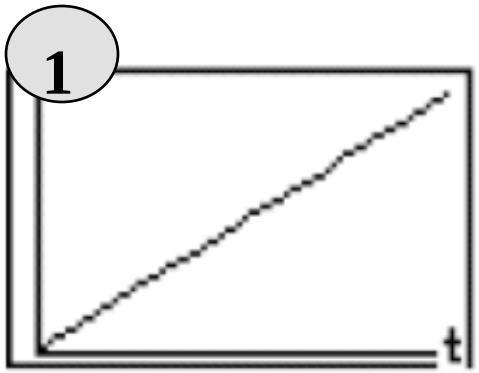
- At $t = 0$ what is the net force acting on the boy?

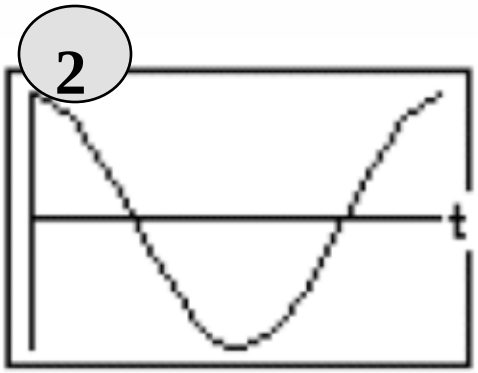
1. Zero
2. Pointing toward the center
3. Pointing away from the center.
4. Pointing in some other direction.

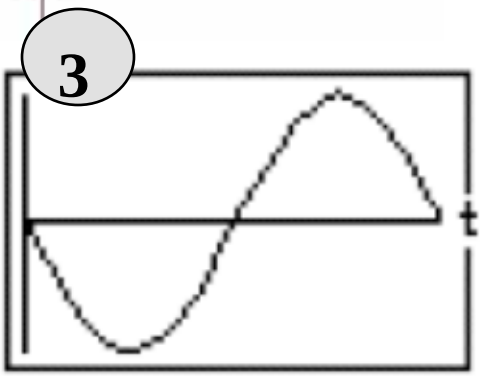


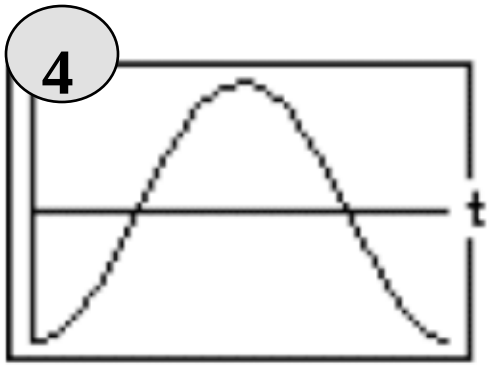
- Which of the following graphs might represent the x-component of the boy's velocity as a function of time?

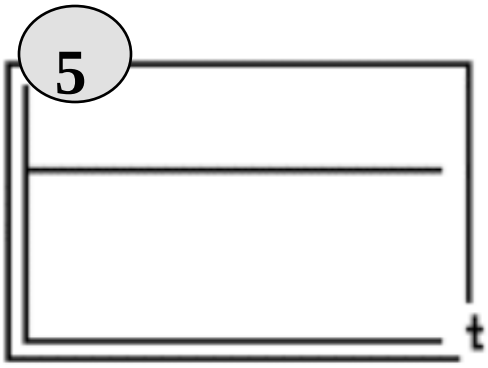


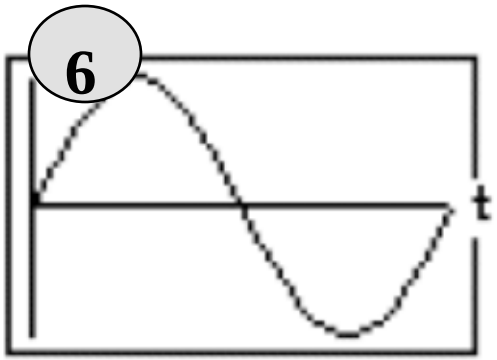




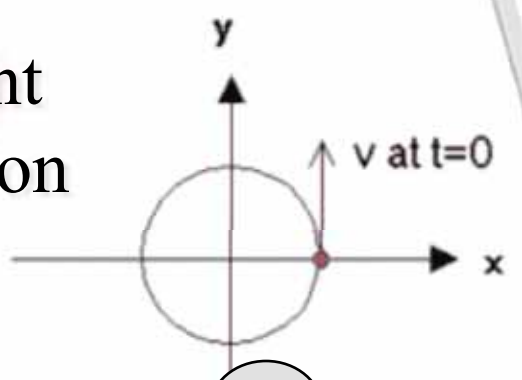


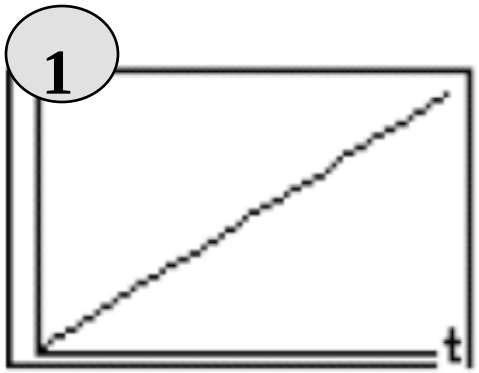


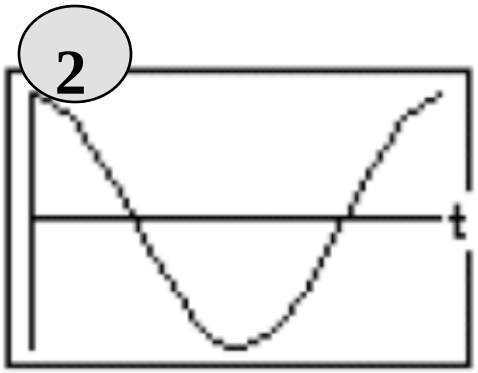


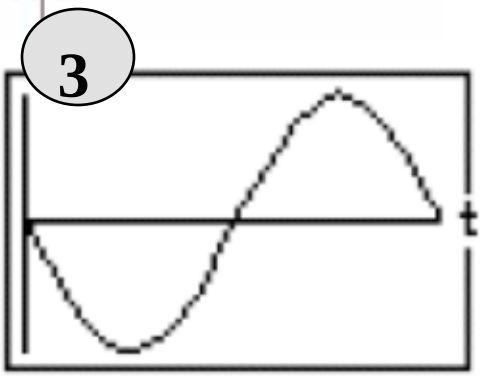


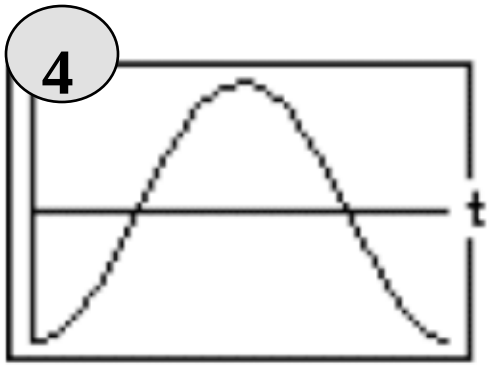
- Which of the following graphs might represent the y-component of the boy's velocity as a function of time?

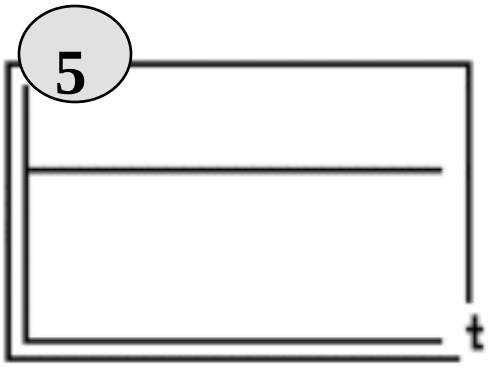


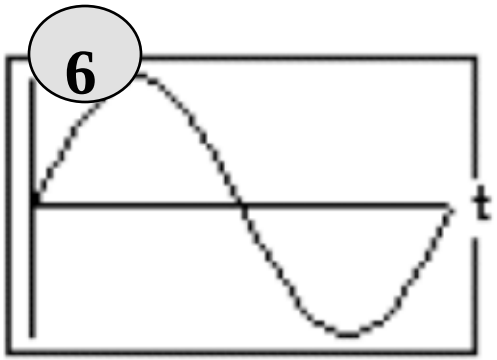




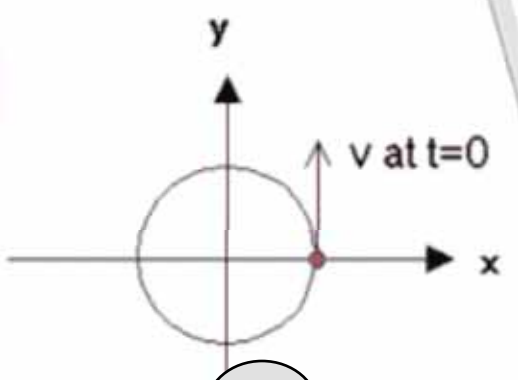


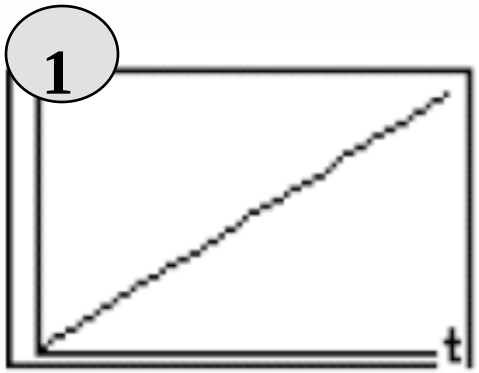


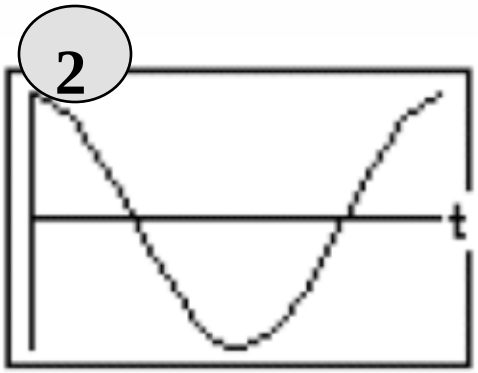


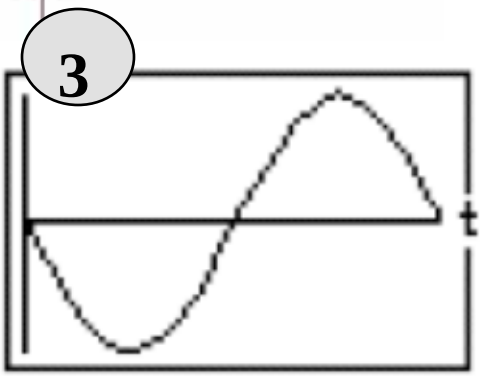


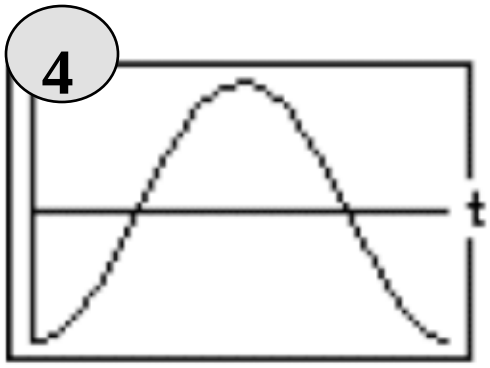
- Which of the following graphs might represent the angle his position vector makes with the x-axis?

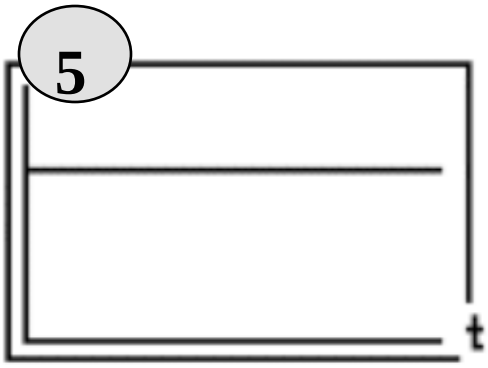


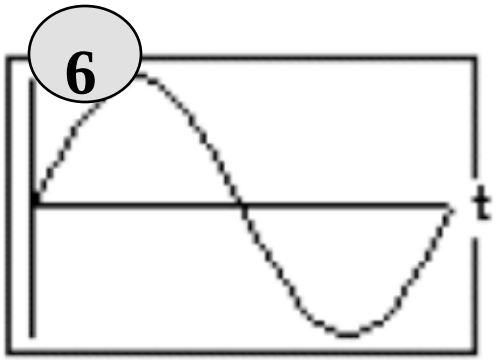




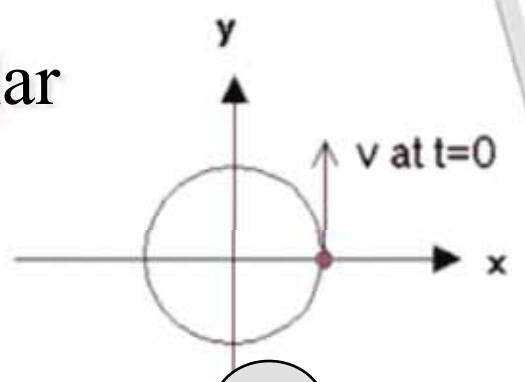


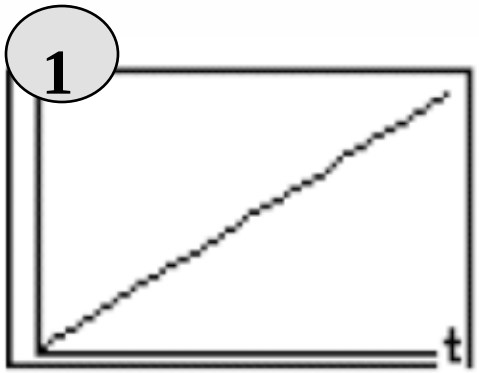


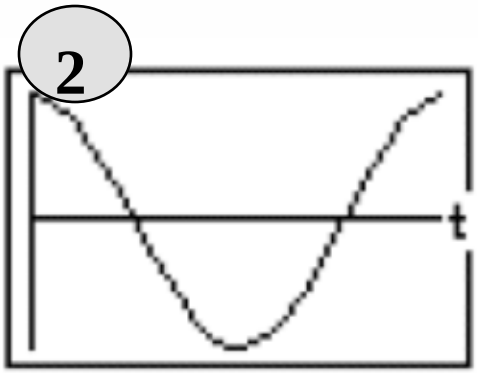


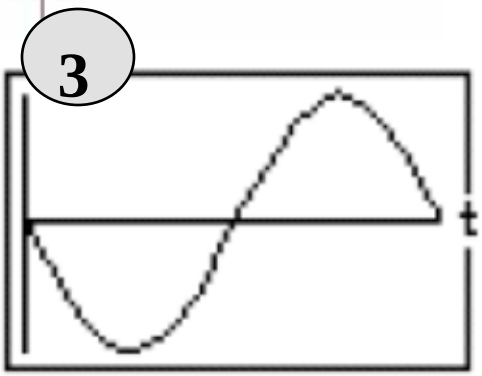


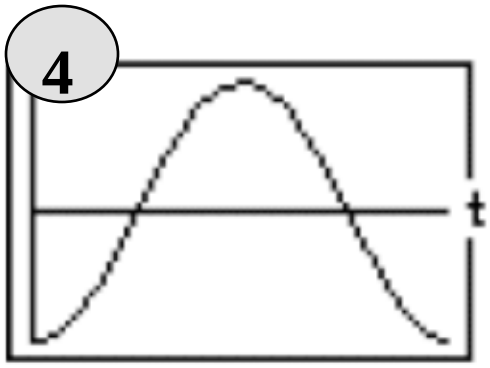
- Which of the following graphs might represent the boy's angular velocity as a function of time?

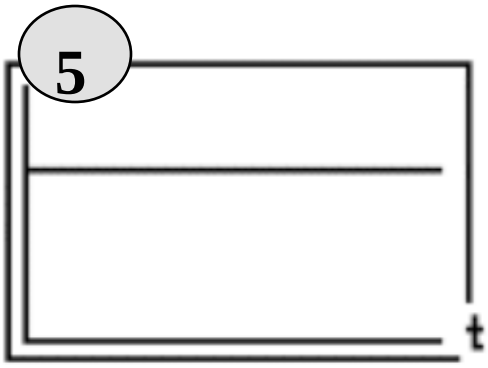


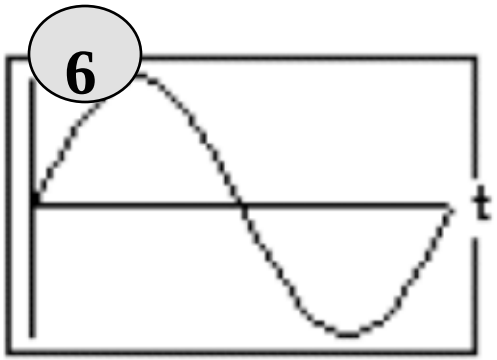




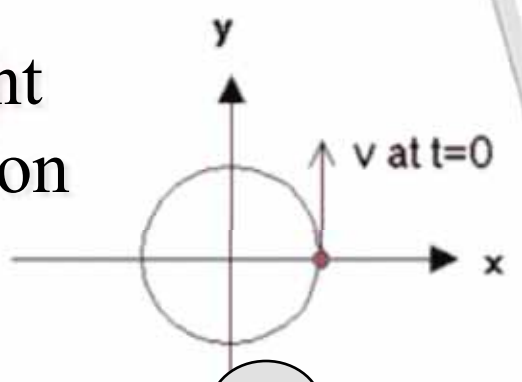


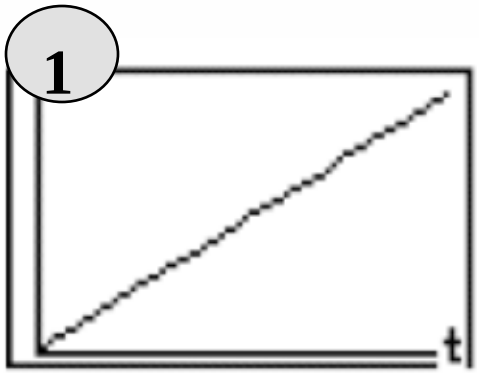


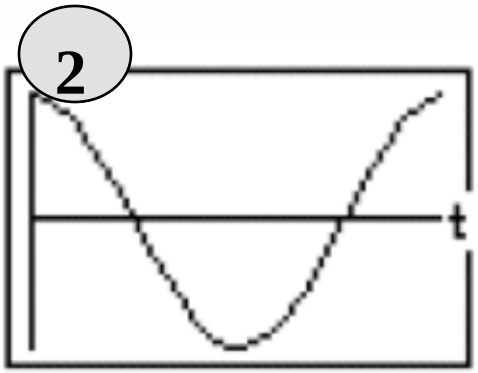


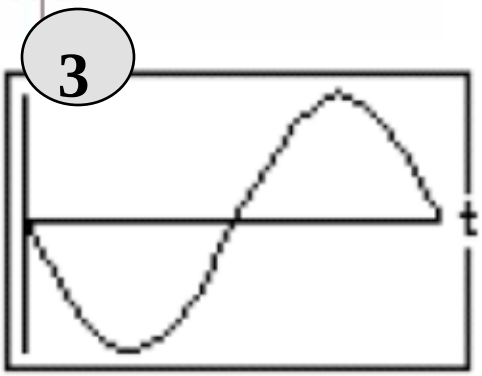


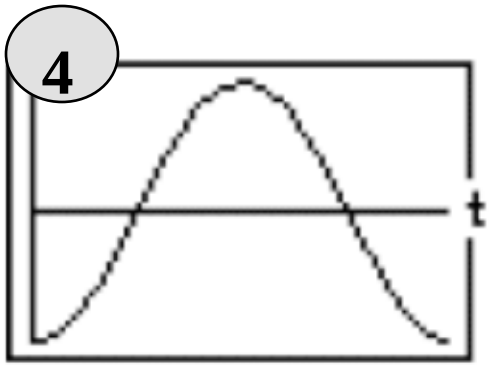
- Which of the following graphs might represent the x-component of the boy's position as a function of time?

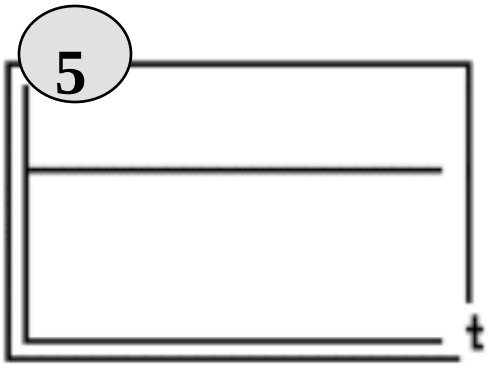


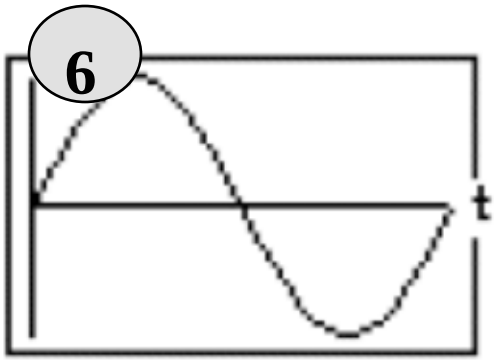




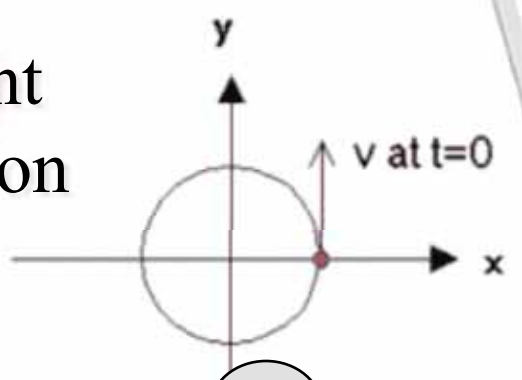


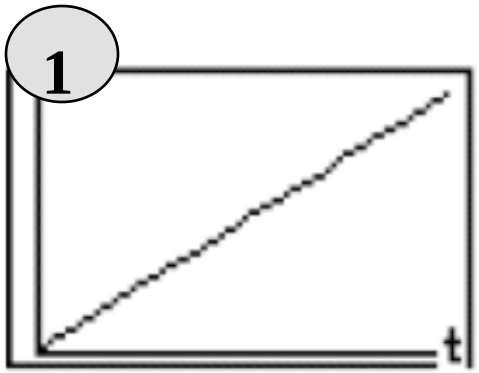


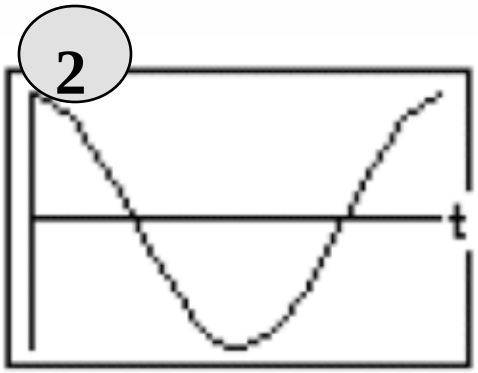


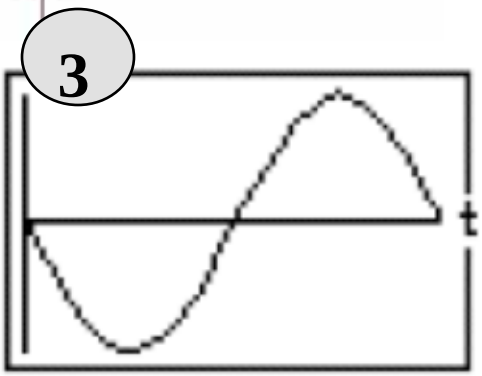


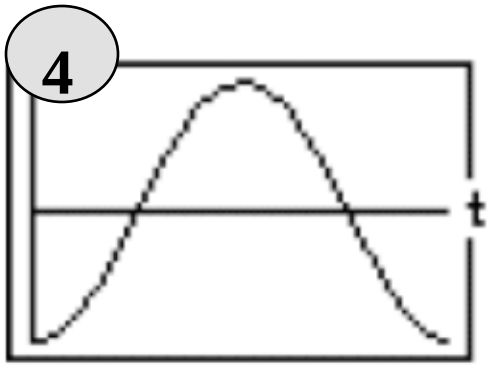
- Which of the following graphs might represent the y-component of the boy's velocity as a function of time?

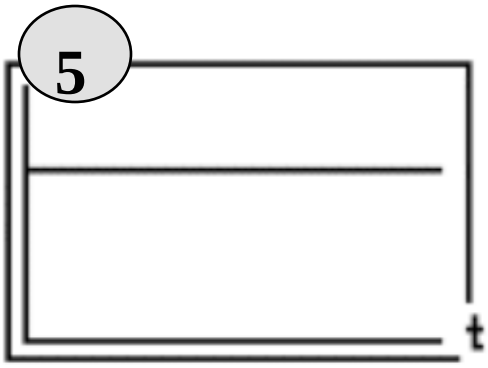


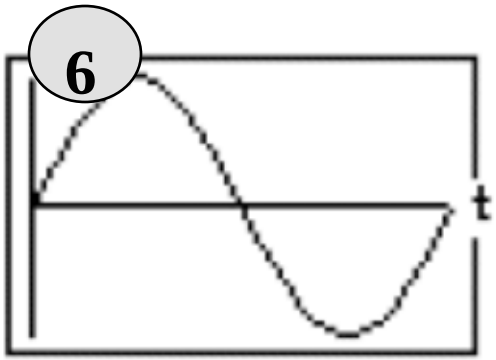




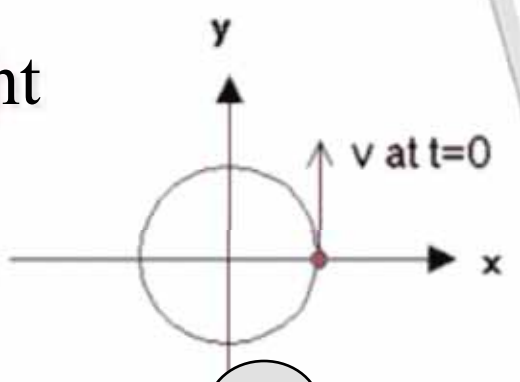




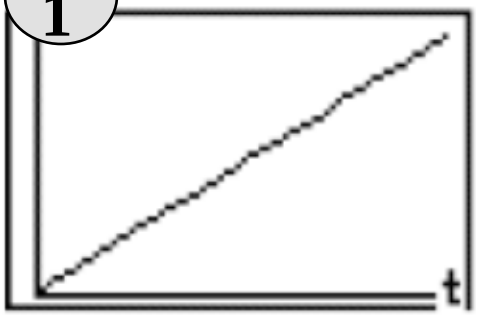




- Which of the following graphs might represent the y-component of the force keeping the boy moving in a circle as a function of time?



1



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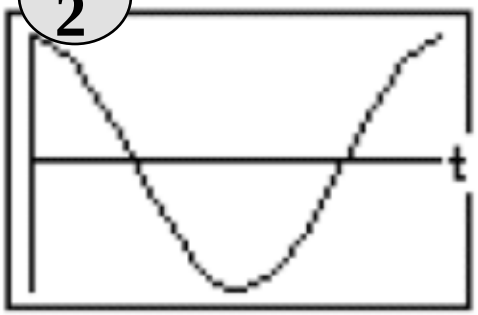

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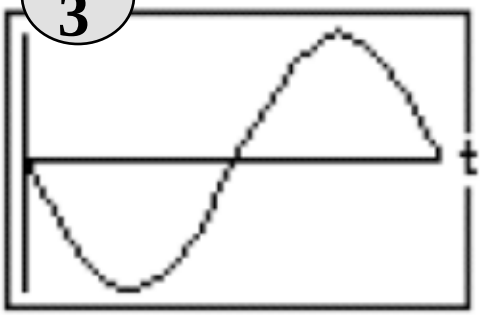
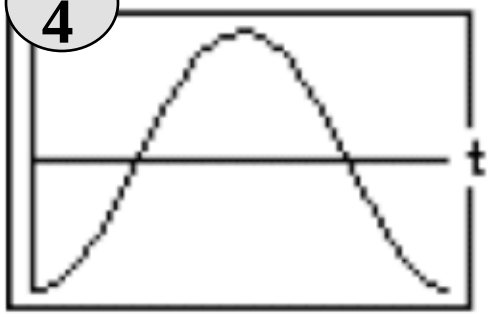


4



5

6