1-

A child sits on a merry-go-round that has a diameter of 6.00 m. The child uses her legs to push the merry-go-round, making it go from rest to an angular speed of 17.0 rpm in a time of 44.0 s.

What is the average angular acceleration α_{avg} of the merry-go-round in units of radians per second squared (rad/s^2)?

$\alpha_{avg} =$ _____ rad/s^2

What is the angular displacement $\Delta\theta$ of the merry-go-round, in units of radians (rad), during the time the child pushes the merry-go-round?

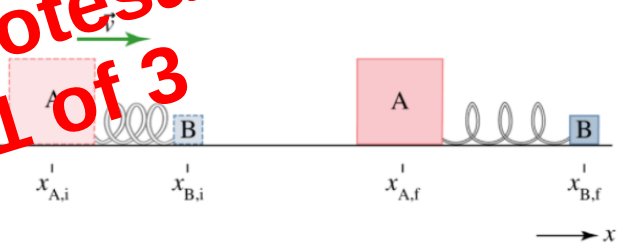
$\Delta\theta =$ _____ rad

What is the maximum tangential speed v_{max} of the child if she rides on the edge of the platform?

$v_{max} =$ _____ m/s

2-

A 3.0-kg block (A) is attached to a 1.0-kg block (B) by a massless spring that is compressed and locked in place, as shown in the figure. The blocks slide without friction along the x-direction at an initial constant speed of $v = 2.0$ m/s. At time $t_0 = 0$ s, the positions of blocks A and B are $x_{A,i} = 1.0$ m and $x_{B,i} = 1.2$ m, respectively, at which point a mechanism releases the spring, and the blocks begin to oscillate as they slide.



If 2.0 s later block B is located at $x_{B,f} = 7.8$ m, what will be the position $x_{A,f}$ of block A?

$x_{A,f} =$ 16 m

Incorrect