Problem Set 3
Physics, summer 2020/21

1) **(2p.)** A carnival ride starts at rest and is accelerated from an initial angle of zero to a final angle of 6.3rad by a counterclockwise angular acceleration of $20rad/s^2$. What is the angular velocity at 6.3rad?

2) **(3p.)** What is the angular velocity vector of the earth? Assume that period T is equal one day. Give answer in rad/s.

3) **(3p.)** Bugsy spins the lottery wheel counter-clockwise until it is rotating at 2 revolutions/sec. The wheel is a clockface with 12 equal divisions labeled $1 \rightarrow 12$ going clockwise. When the 12 is at the top, rotating at 2 revolutions/sec, he lets it slow down on its own. It takes 44.2 seconds to slow down. Assuming that the angular acceleration is constant, what two numbers does it land between?

4) **(2p.)** An object, attached to a 0,5m string, does 4 rotation in one second. Find
   a) Period
   b) Tangential velocity
   c) Angular velocity of the object.

Sylwia Majchrowska
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