Simple Circular Motion

1. A turntable rotates at a frequency of 30 rpm. A quarter is placed 20 cm from the center.
   a. Find the period of the rotation.

   b. Find the speed of the quarter.

   c. Find the centripetal acceleration of the quarter.

   d. Find the coefficient of friction necessary to keep the quarter on the turntable.

2. A rope is used to pull a block in a circle on a frictionless surface. If the rope is two meters long and it breaks at 150 N, what is the maximum tangential speed of a 2-kg block? How long does one revolution take?