HW5-15 Soln)

Let up be positive, as well as toward the center of the circle. NII:

c: 
$$+ F_N = ma_C = m\omega^2 r$$
  
y:  $+ F_{fS} - gm = ma_y = 0$   
 $F_{fS} = \mu_S F_N$  (crit. sit.)

Then,

$$\mu_{\rm S} = \frac{F_{\rm fS}}{F_{\rm N}} = \frac{gm}{m\omega^2 r} = \frac{g}{\omega^2 r} = \frac{10}{7^2(5)} = 0.041$$