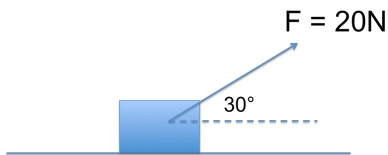


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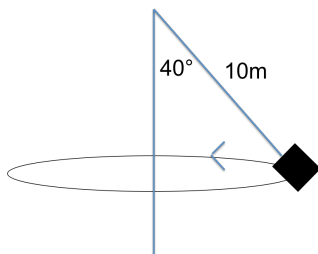
Time: 15 minutes. Make sure you show all the procedures of computation: answers without procedures will not receive any credits. Answers must be expressed with SI units.

1. A person is pressing a framed picture (mass = 1.10kg) against wall so that it doesn't fall down. The coefficient of static friction between the picture and the wall is 0.66. When the pressing force is perpendicular to the wall, what is the minimum magnitude of the force?

2. An object ($m = 2.0\text{kg}$) is being pulled by $F = 20\text{N}$ which is headed up by 30° to the horizontal line as shown. When the kinetic friction coefficient is 0.3, find the acceleration of it. Show all calculation.



3. A "swing" ride consists of a chair (10kg) is swung in a circle by 10.0m cable attached to the vertical rotating pole, making an angle 40° to the vertical line.



a) Find the tension. (hint: apply Newton's law to its y-directional motion.)

b) Find the speed of the chair.