Dynamics Practice: Now With Numbers!

1. Find the acceleration of the following objects.

 32N 51o

 4.0kg

 4.0kg

 51o 32N

 μ=0.66 μ=0.66

 54N

 33o

 1.20kg

 4.0kg

 μ=0.48 14N μ=0.75

 1.20kg

 24N μ=0.75

 μ=0.40

 550g

 22o

 16N

2. Find the force of friction acting on the following objects. State whether the force is static or kinetic friction.

 250kg

 A. The truck accelerates from rest to 50.0km/h over 105m. The box does not slip.

 250kg

 B. The truck brakes from 50.0km/h to rest in 42m. The box does not slip.

8.0kg

 12kg

 120N

 μ=0.50

C. The 8.0kg object does not slip. Find the following: a. The force of friction acting on the 12kg mass from the ground.

 b. The force of friction acting on the 8.0kg mass from the 12kg mass.

3. The following masses are suspended in equilibrium. Find the tension in each string.

A.

36.0o

222g

 F

B.

79kg

string

 C.

79kg

string

152o

D.

68o

152o

string 1

string 2

79kg