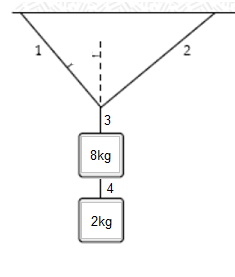
Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_

**TEST 1: Laws of Motion**

**I. Answer the following problems. Include all the work to receive full credit. Use a=g=±10m/s2.**

**1. Two blocks are suspended as it is shown in the figure below. Find the tension of all 4 cables. (Cables 1 and 2 are perpendicular)**

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42°

**T1=\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

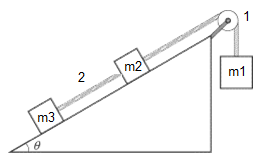
**T2=\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**T3=\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**T4=\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**2. Three blocks are part of a system as shown. The blocks are connected by two cables, cable 1 & 2. Use the following information:**

**m1=5kg m2=3kg m3=4kg Ɵ=25°**

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**a. Draw a Free Body Diagram for each block.**

**m1 m2 m3**

**b. Find the acceleration of the system.**

**a= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**c. Find the values for tension 1 and tension 2.**

**T1= \_\_\_\_\_\_\_\_\_\_\_\_\_**

**T2= \_\_\_\_\_\_\_\_\_\_\_\_\_**

**II. Select the correct answer.**

**1.** When a certain force is applied to an object with a mass of 2 kg, its acceleration is 10.0 m/s2. When the same force is applied to a different object, its acceleration is 4.0 m/s2. The mass of second object is \_\_\_\_\_\_\_\_\_\_\_\_\_

**a. 10kg**

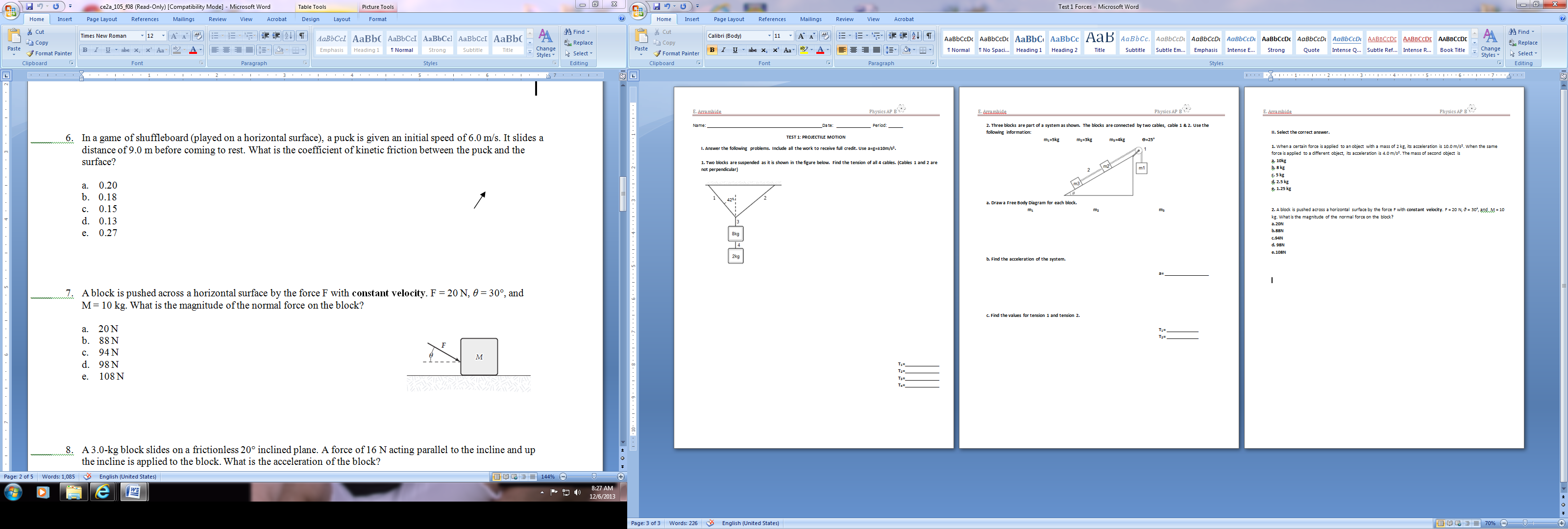
**b. 8 kg**

**c. 5 kg**

**d. 2.5 kg**

**e. 1.25 kg**

**2.** A block is pushed across a horizontal surface by the force F with **constant velocity**. F = 20 N, *θ* = 30°, and M = 10kg. What is the magnitude of the normal force on the block? \_\_\_\_\_\_\_\_\_\_\_\_\_

**a. 20N**

**b. 88N**

**c. 94N**

**d. 100N**

**e. 110N**

**3.** When an object is in equilibrium, what kind of motion can it have? \_\_\_\_\_\_\_\_\_\_\_\_\_

**a. constant acceleration.**

**b. constant motion.**

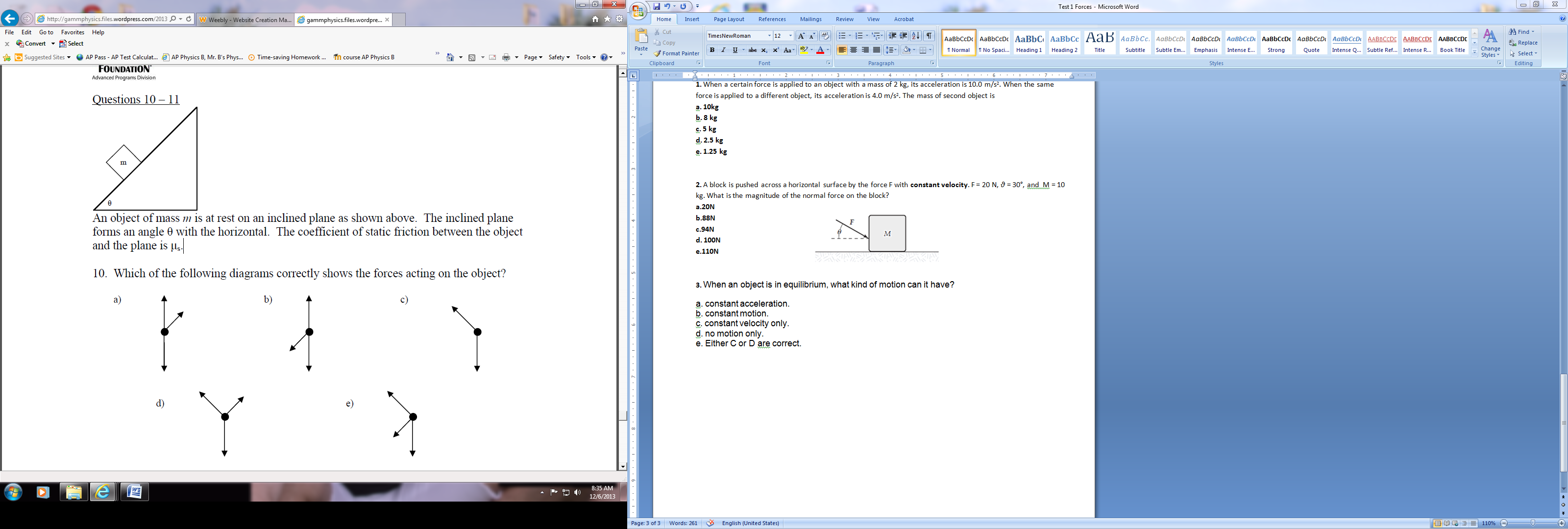
**c. constant velocity only.**

**d. no motion only.**

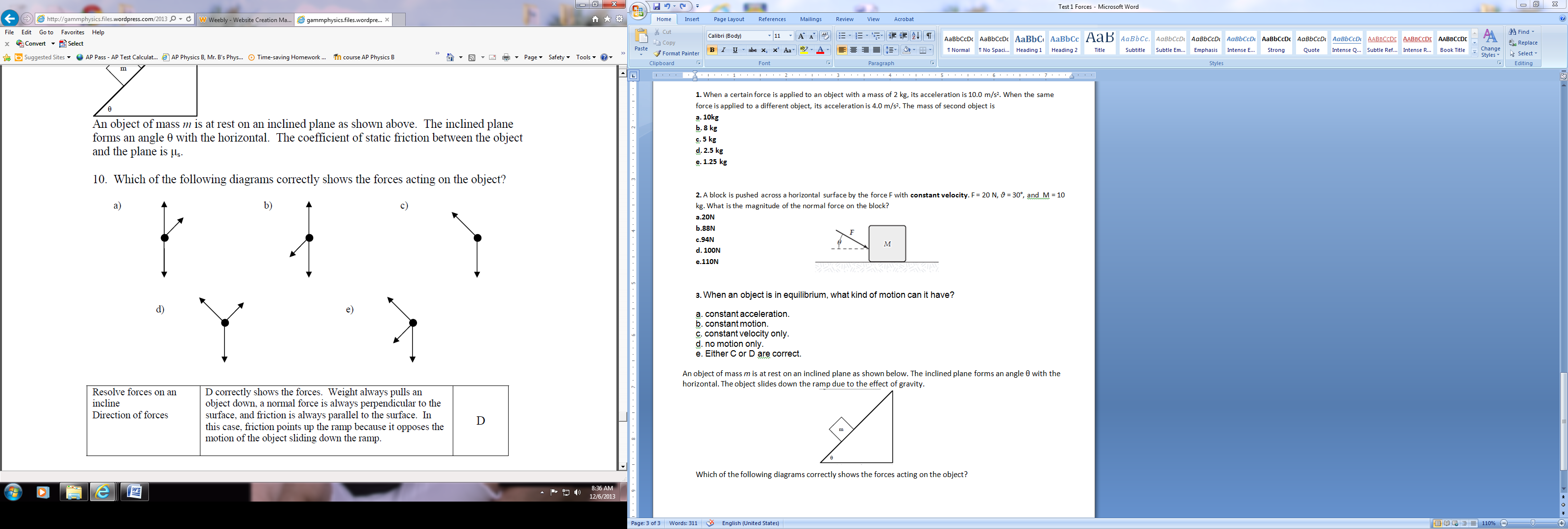
**e. Either C or D are correct.**

***Use the following for questions 4-6***

An object of mass *m* is at rest on an inclined plane as shown below. The inclined plane forms an angle θ with the horizontal. The object slides down the ramp due to the effect of gravity. \_\_\_\_\_\_\_\_\_\_\_\_\_



**4. Which of the following diagrams correctly shows the forces acting on the object?** \_\_\_\_\_\_\_\_\_\_\_\_\_

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**5. The normal force acting on the object is:** \_\_\_\_\_\_\_\_\_\_\_\_\_

a. mg

b.mgcosƟ

c.mgsinƟ

d. there is no normal force

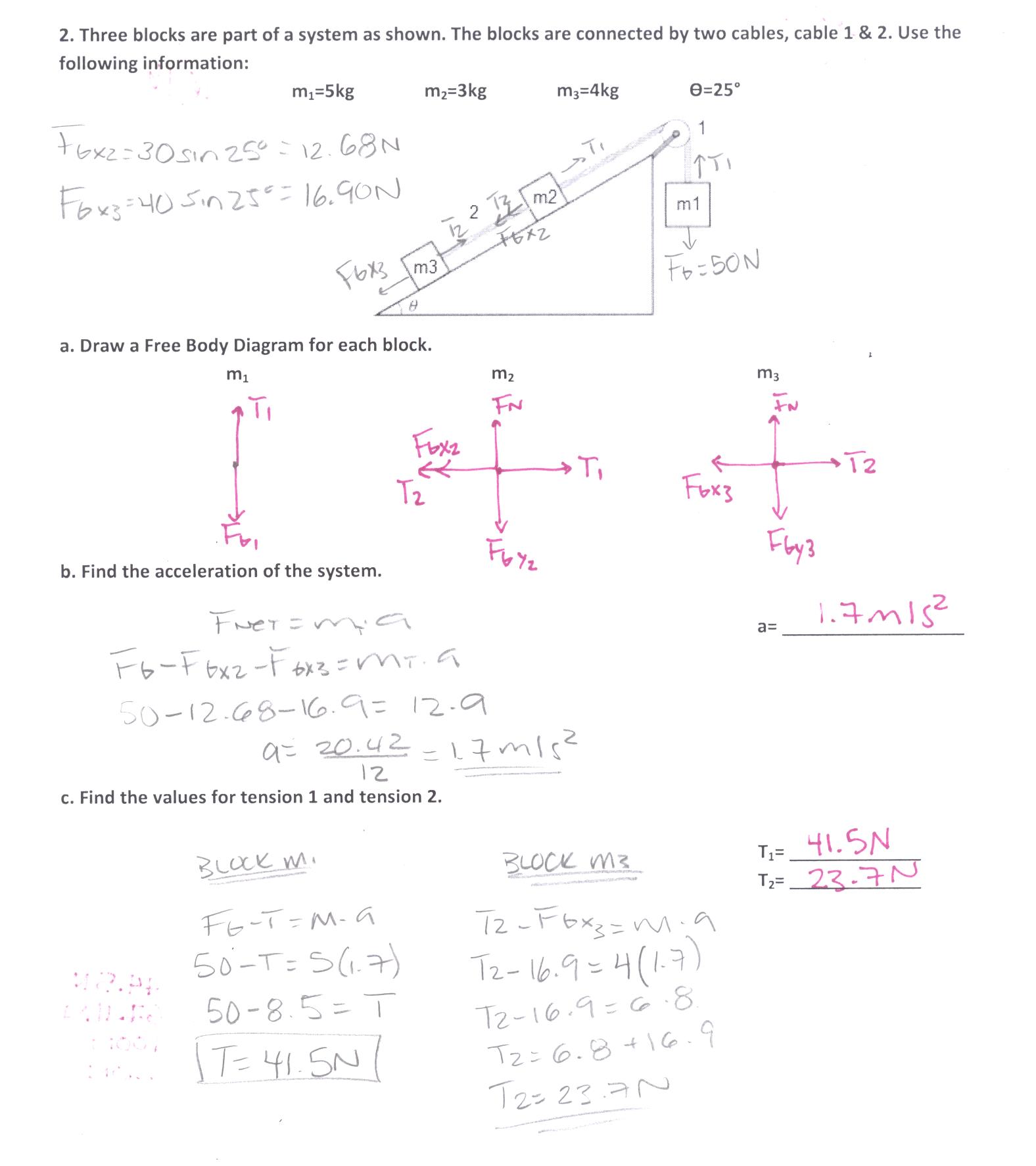
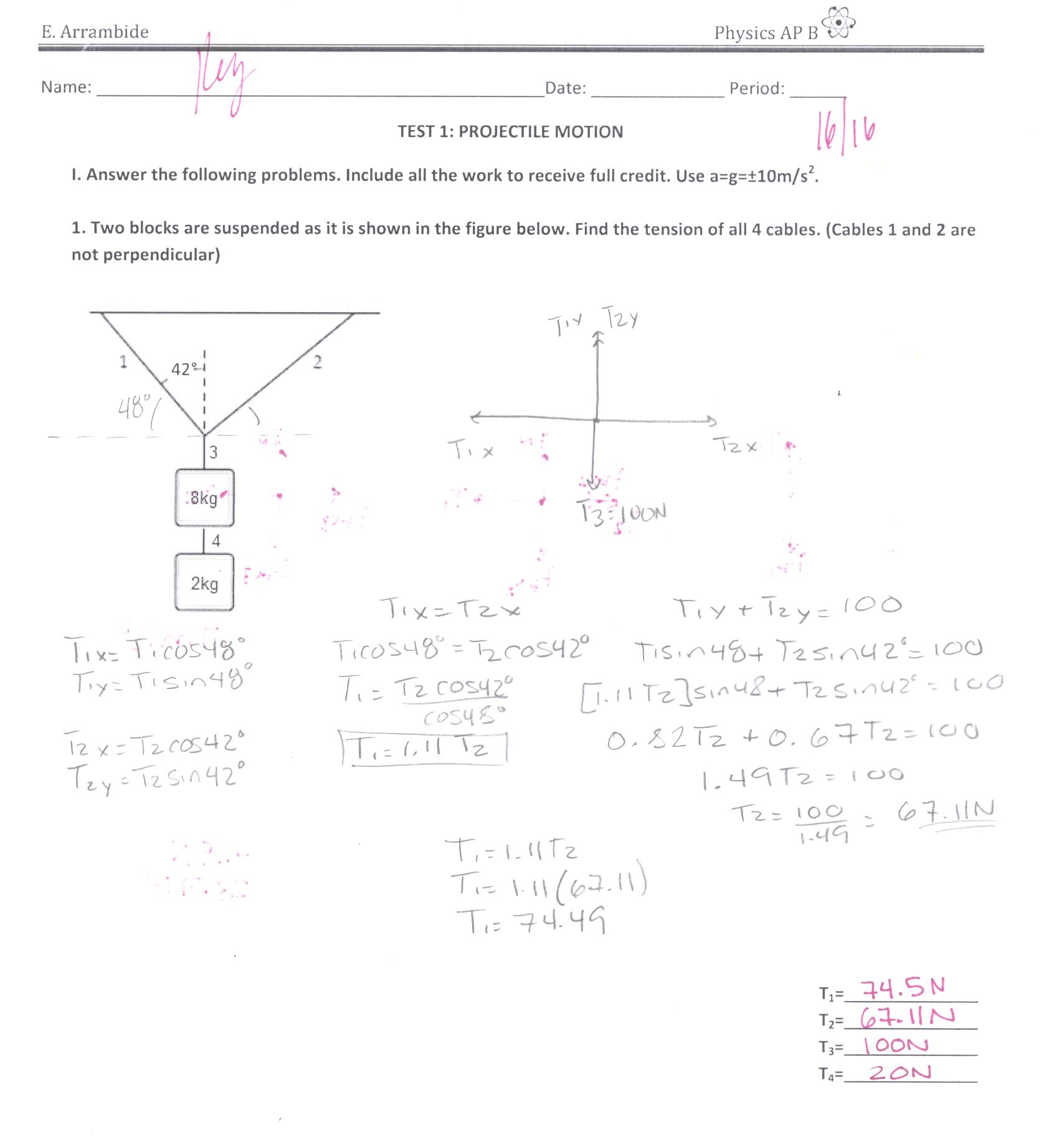
**6. The force making the object slide is:** \_\_\_\_\_\_\_\_\_\_\_\_\_

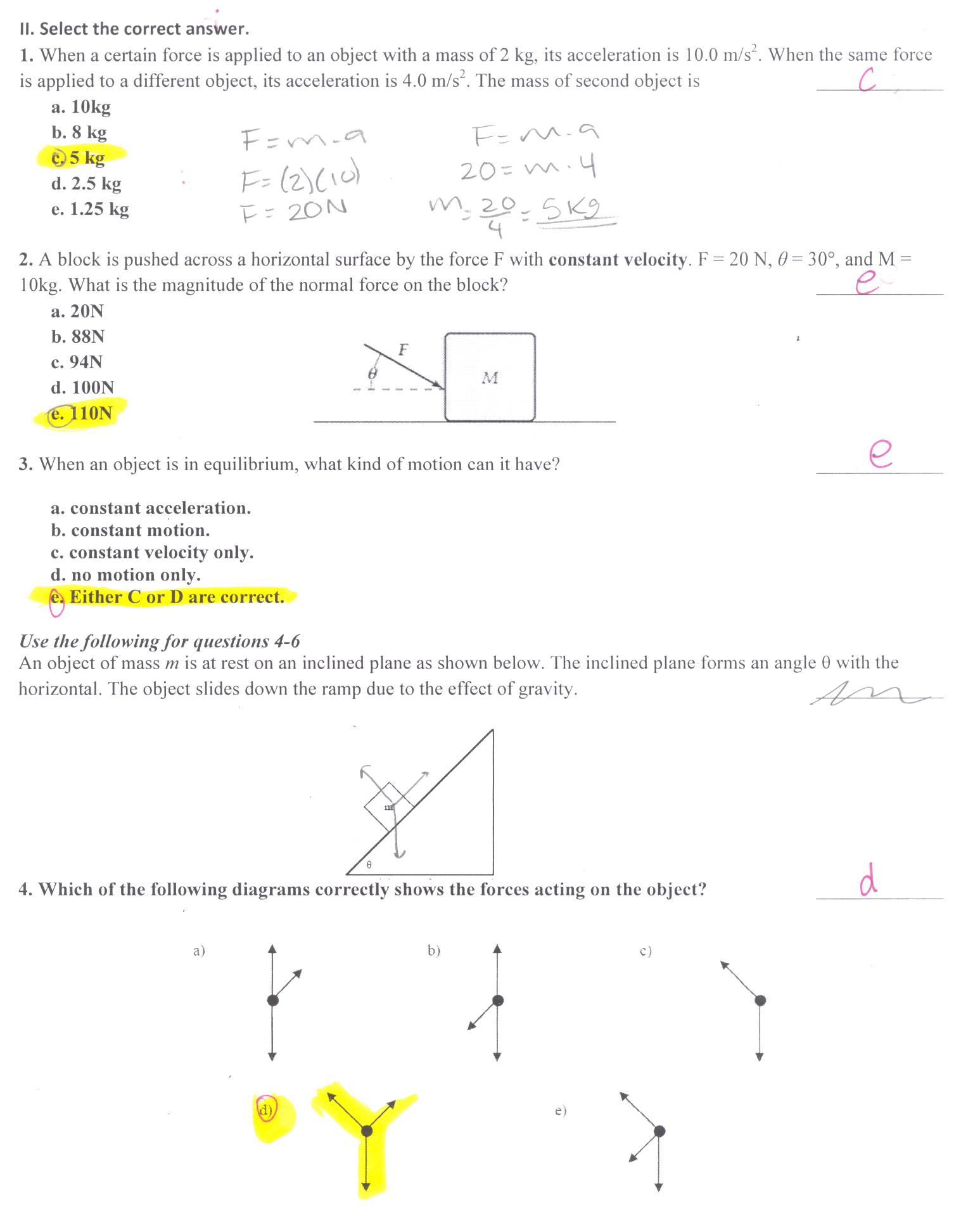
a. mg

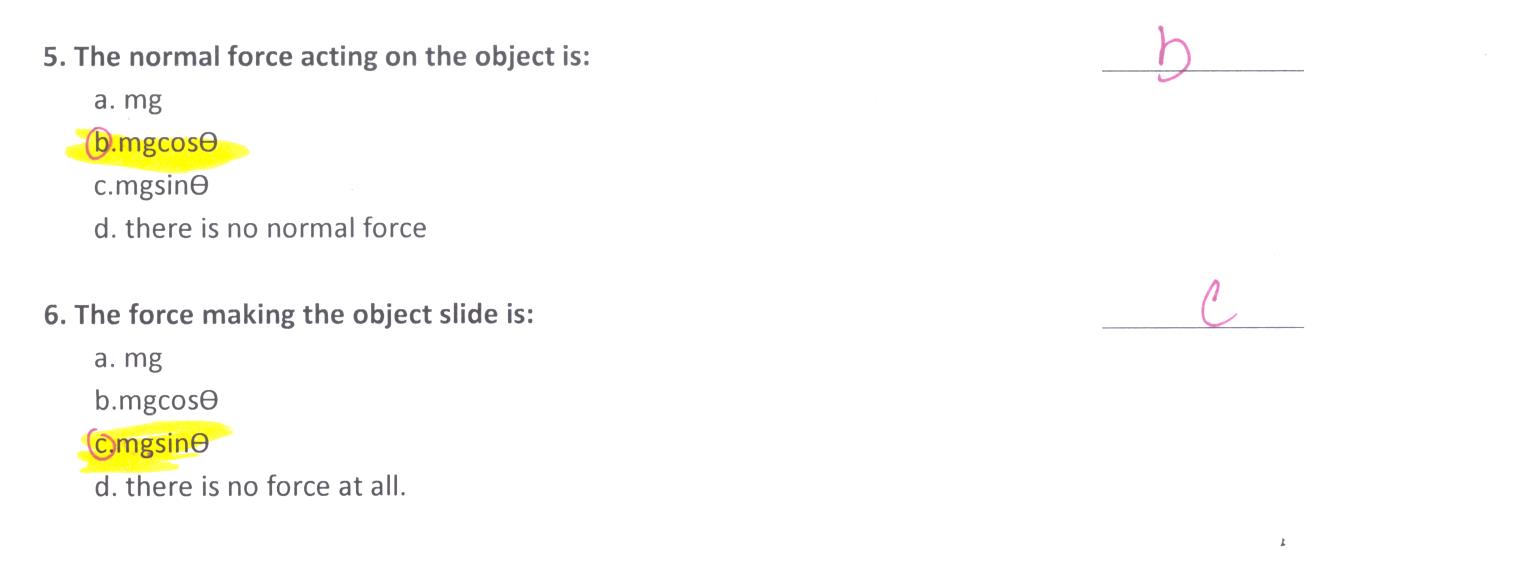
b.mgcosƟ

c.mgsinƟ

d. there is no force at all.

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