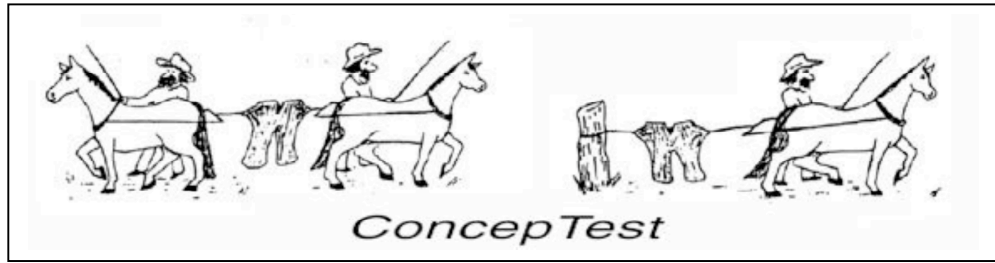


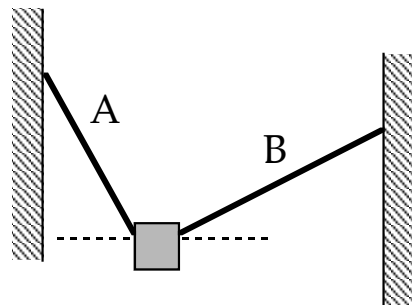
1)



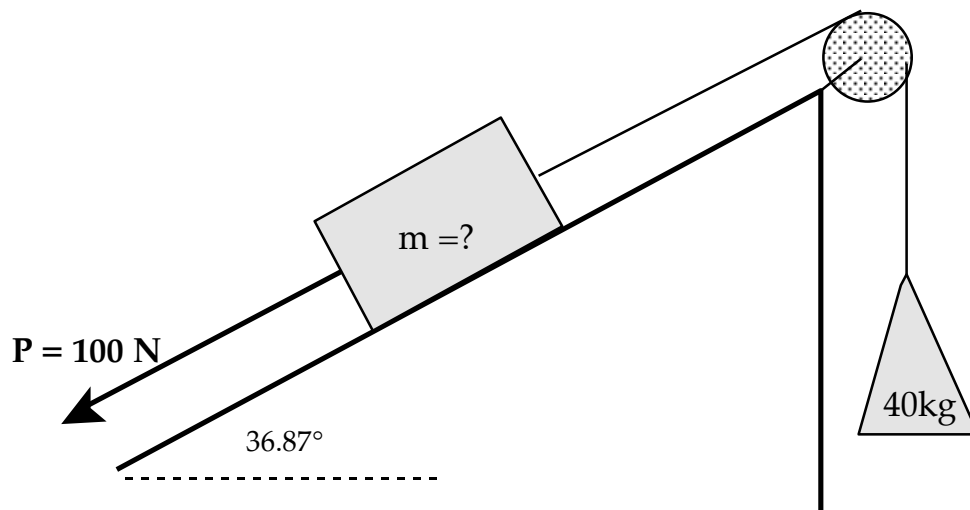
The Levi's advertisement above left shows two horses attempting to pull apart a pair of jeans. Use Newton's first and third laws to explain how the forces on the jeans would be different if only one horse were used as in the diagram above right.

- 2) a) If the forces on an object are balanced, what can be said about the motion of the object? b) If an object is moving to the right with a constant velocity, what can be said about the forces on the object?

3) An object hangs from two ropes as drawn. Which rope has the higher tension? Explain clearly, using the word "component" (properly, and more than once if necessary) in your explanation.



4)



a) Find the unknown mass in the diagram above if the surfaces are frictionless and the objects are at rest.

b) Find the unknown mass if the coefficient of friction (μ) between the block and the incline is 0.5 and the block is sliding up the incline at constant speed. Draw a clear FBD of the block.

c) Find the unknown mass if the coefficient of friction (μ) between the block and the incline is 0.5 and the block is sliding down the incline at constant speed. Draw a clear FBD of the block.

5) A 6-kg rock is transported from the Earth to the moon. The acceleration of gravity on the surface of the moon is $\frac{1}{6}$ th of the acceleration of gravity on the surface of the Earth.

a. What is the weight of the rock on the Earth? _____

b. What is the weight of the rock on the moon? _____

c. What is the mass of the rock on the moon? _____