

Section 1: Resolving forces

Crucial points

1. Always draw a clear diagram

Make sure that you include all forces. These may include weights, normal reactions, tensions in strings etc, resistance forces. Write in any angles. Remember that friction always opposes the tendency to sliding motion. The Notes and Examples give detailed examples.

2. Make sure you are confident with the use of vectors, especially resolving

The technique of resolving forces underpins much of Mechanics work. It is very important that you master this. The Notes and Examples should help. If you are not confident with using sine and cosine to find the components of a vector, you must practice until you are.

3. Remember the difference between mass and weight

On a force diagram, you need to use weight which is equal to mg and is measured in Newtons. Mass is measured in kilograms. Make sure that you read questions carefully and note whether you are told the mass or the weight.

4. Remember how to deal with slopes

When dealing with a particle on a slope, it is usually best to resolve forces into components parallel to the slope and perpendicular to the slope. Draw a clear diagram and mark in the angles.

5. Remember to state what the direction of a force is relative to

Saying that a force has a direction of, say, 67° does not tell you anything about its direction unless you also say what the 67° is relative to. Usually directions are given relative to the positive **i** direction.

6. Remember the condition for equilibrium

If a particle is in equilibrium, the resultant force on it must be zero. This means that the total of the components forces in each direction must be zero.

