**2D Power**

Power:

A key Point: the ‘F’ in formulae

Work Done ‘F’ = Total resultant force Power ‘F’ = a single force (from a motor for example)

1. A truck is being pulled up a slope at a constant speed of 8ms-1 by a force of magnitude 2000N acting parallel to the direction of motion of the truck. Calculate the power developed in kilowatts.
2. A car of mass 1250kg is travelling along a horizontal road. The car’s engine is working at 24kW. The resistance to motion is constant and has magnitude 600N. Calculate:
3. The acceleration of the car when it is travelling at 6ms-1
4. The maximum speed of the car
5. A car of mass 1100kg is travelling at a constant speed of 15ms-1 along a straight road which is inclined at 7˚ to the horizontal. The engine is working at a rate of 24kW.
6. Calculate the magnitude of the non-gravitational resistances to motion

The rate of working of the engine is now increased to 28kW. Assuming the resistances to motion are unchanged:

1. Calculate the initial acceleration of the car