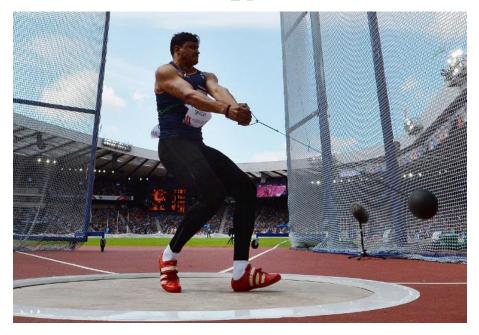
Centripetal acceleration

When moving along a circular path of radius R, with constant speed v, an object has acceleration directed towards the center, called Centripetal Acceleration:

$$a = \frac{v^2}{R}$$



Homework

Problem 1. A car is moving on a ramp of radius R= 30m. Find the maximum speed that it may reach without skidding, if the coefficient of static friction between the road and the tires is μ =0.7.

Problem 2. Find the speed and period of orbital motion of *the International Space Station* around the Earth. Note that its orbit is located **400 km** above the ground. This is much smaller than the Earth radius **R=6370.** This means that you can assume the gravitational force acting on the space station to be the same as on Earth surface, *Mg*. Also, for simplicity, take the radius of the orbit to be equal to that of Earth.