**Friction**

Friction is a force which opposes motion between two rough surfaces.

**Scenario 1:** A block is on a horizontal rough surface with no forces (other than gravity) acting on it.

**Scenario 2:** A horizontal force is applied but it is not enough to move the block.



**Scenario 3**: T has reached or exceeded Fmax, the maximum or limiting value for the friction.

Two things determine the maximum or limiting value, Fmax between two surfaces:

$$F\_{max}=μR$$

**Example**

A block of mass 5kg rests on a rough horizontal plane. The coefficient of friction between the block and the plane is 0.6.

Calculate the frictional force acting on the block when a horizontal force, P, is applied to the block and the magnitude of P is:

a) 12N

b) 29.4N

c) 36N

Also calculate the magnitude of any acceleration that may occur.