Force Diagrams

Action-Reaction

$$\mathbf{F}_{12} = -\mathbf{F}_{21}$$

$\mathbf{n} = \mathbf{F}_{tm}$

$\mathbf{F}_g = \mathbf{F}_{Em}$

$\mathbf{F}_{mt}$

$\mathbf{F}_{mE}$

Cause and Effect

$$\Sigma \vec{F} = m\vec{a}$$

or

$$\Sigma F_x = ma_x$$
$$\Sigma F_y = ma_y$$

NEWTON'S 2nd LAW

$$\sum \vec{F} = m\vec{a}$$
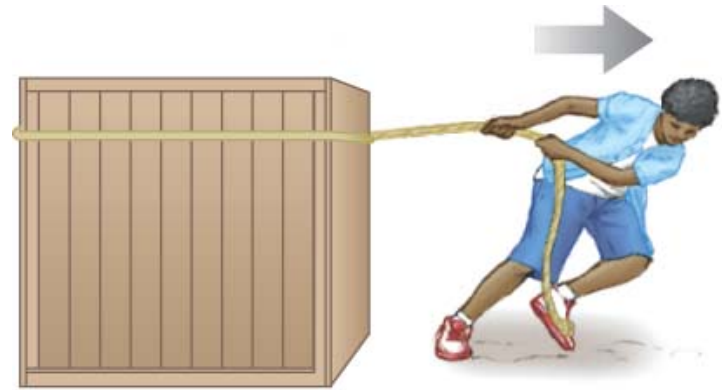
NET FORCE

MASS of SYSTEM

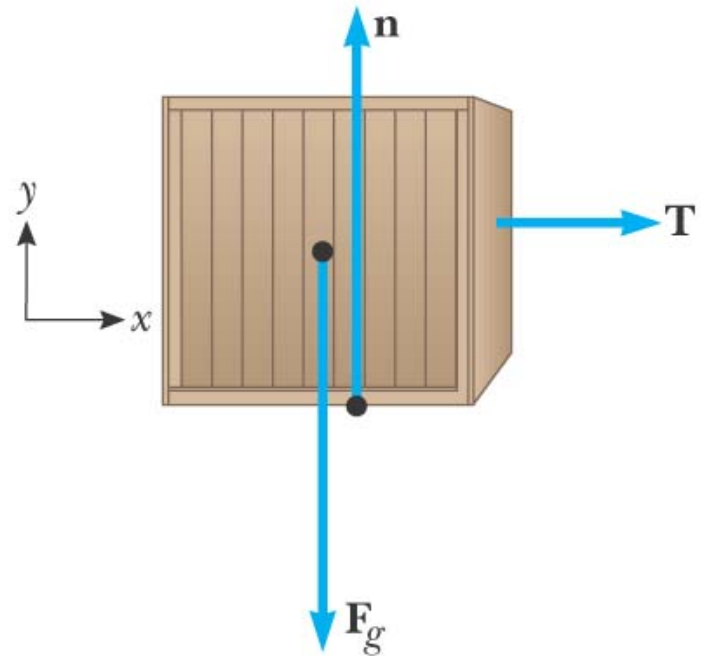ACCELERATION of SYSTEM

FORCES:

Tension (force in the string)

Normal Force (force of contact)
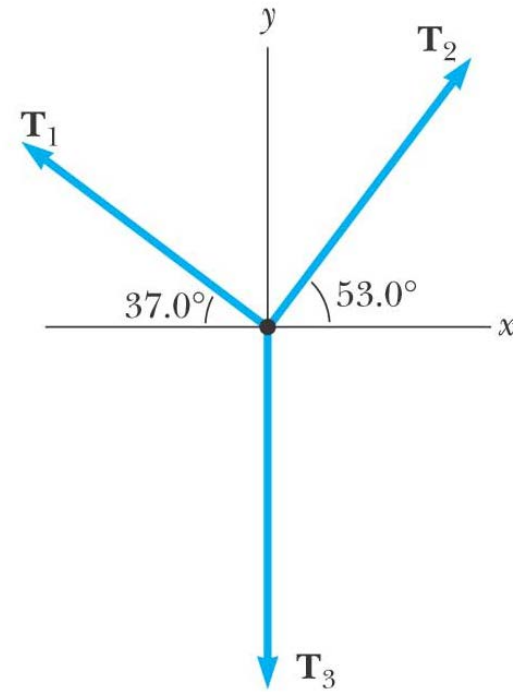
Force of Gravity (or Weight)

(a)

n

y

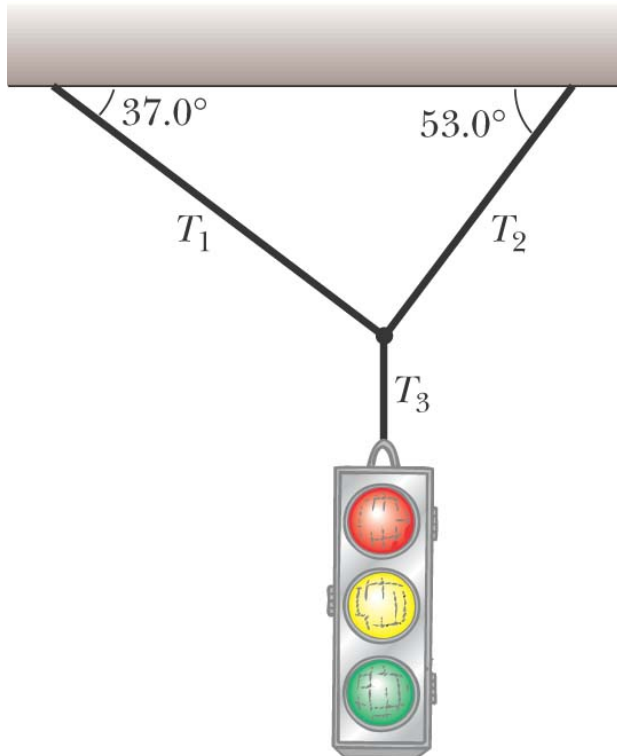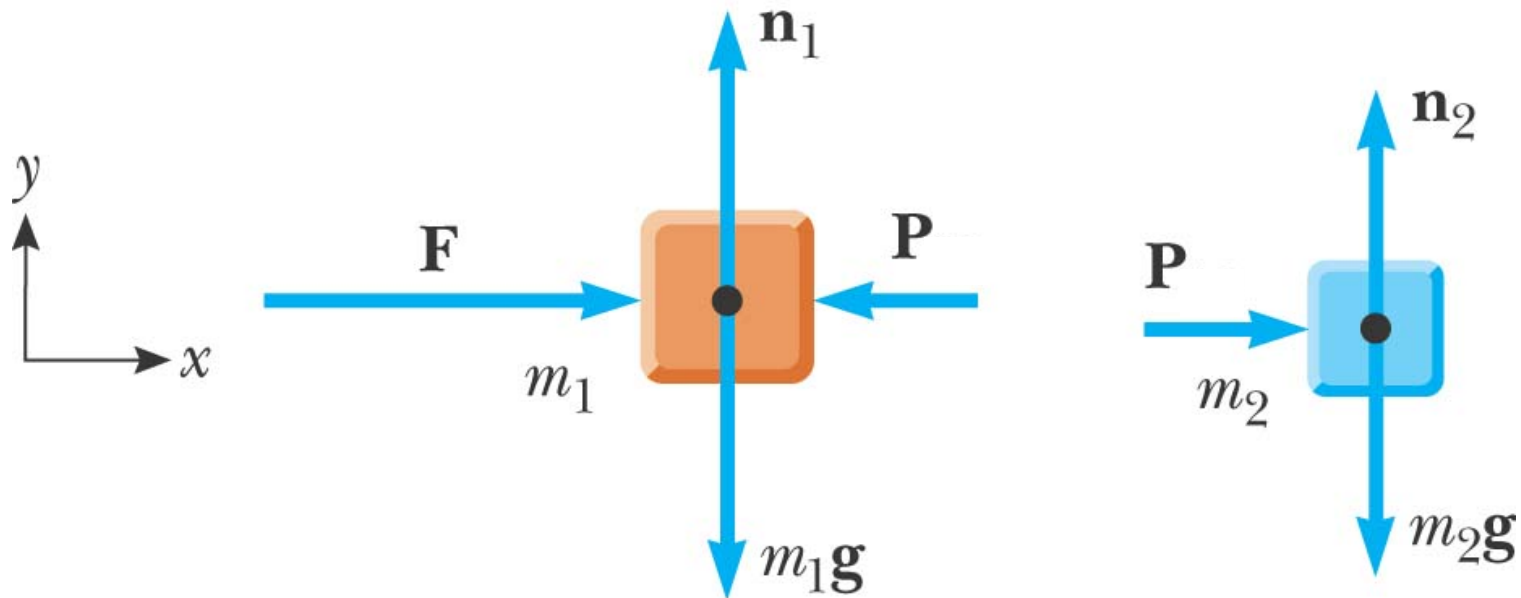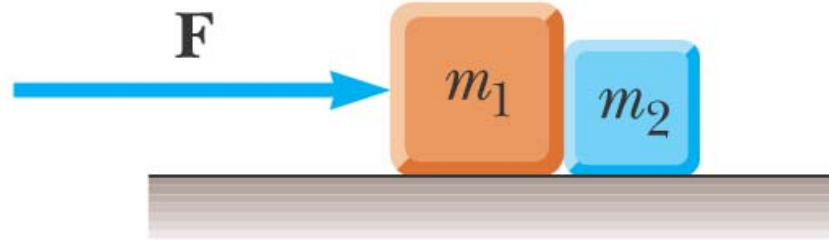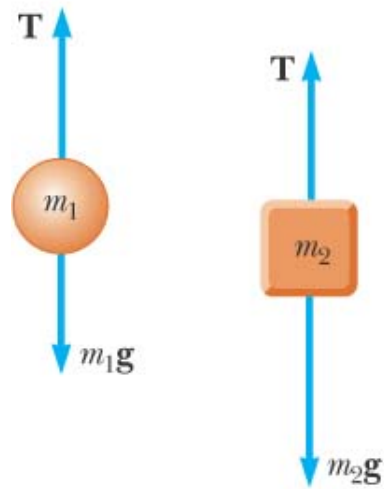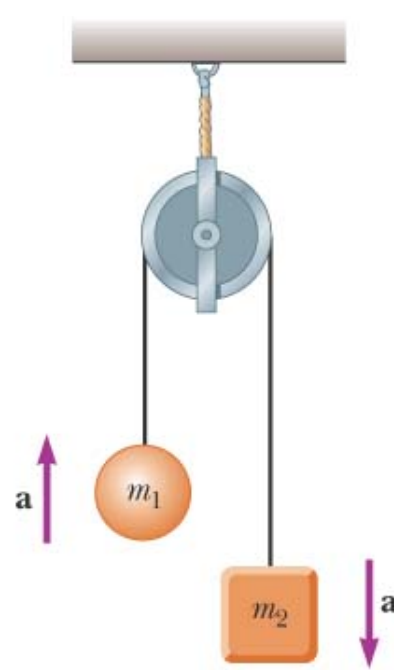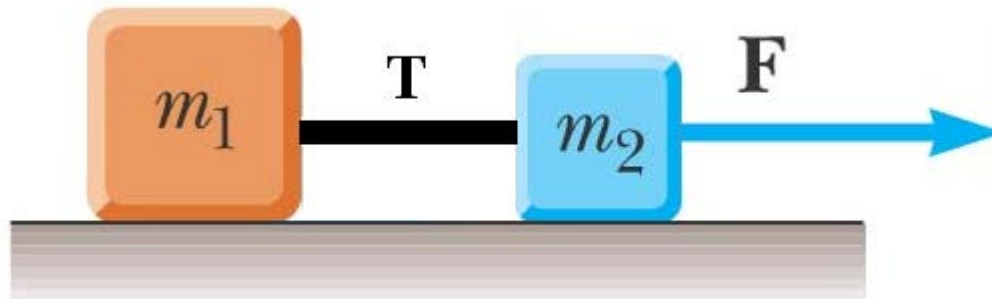x

T

$\mathbf{F}_g$

Traffic light

Force of Contact

Ex. 4.4

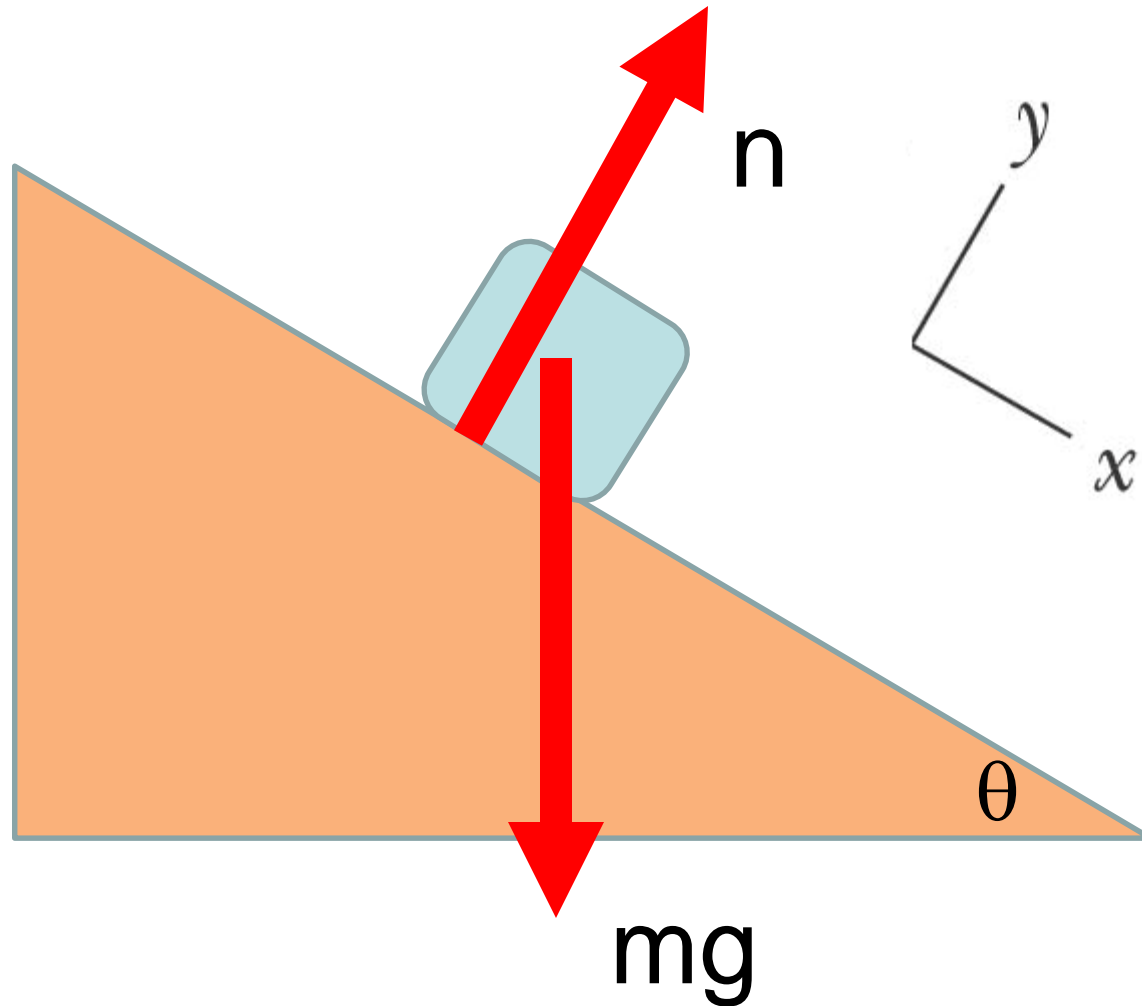# Two Masses and Applied Force
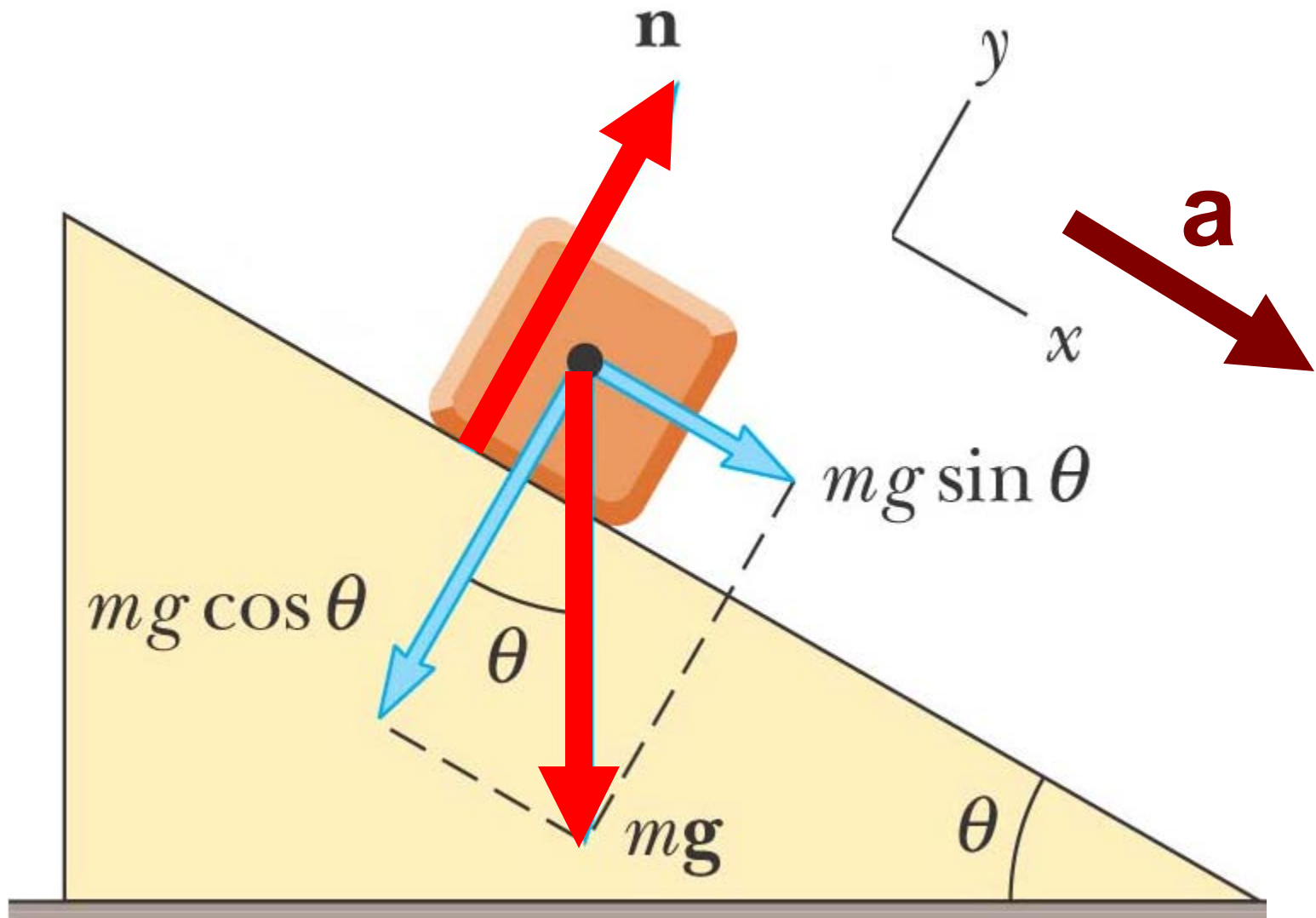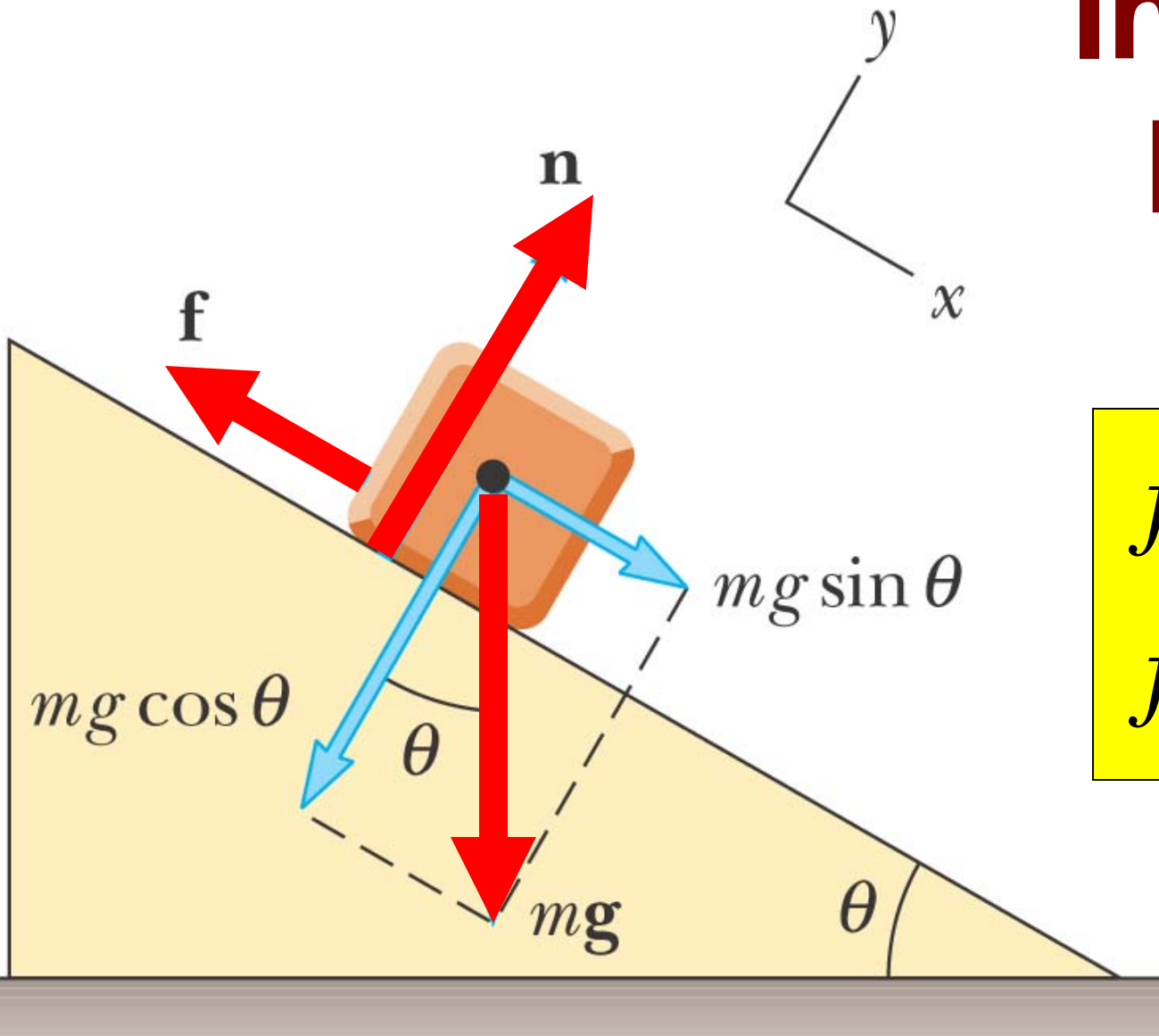
Frictionless Inclined Plane

n

mg

θ

y

x

Frictionless Inclined Plane

Inclined Plane

$$f_s \leq \mu_s N$$
$$f_k = \mu_k N$$