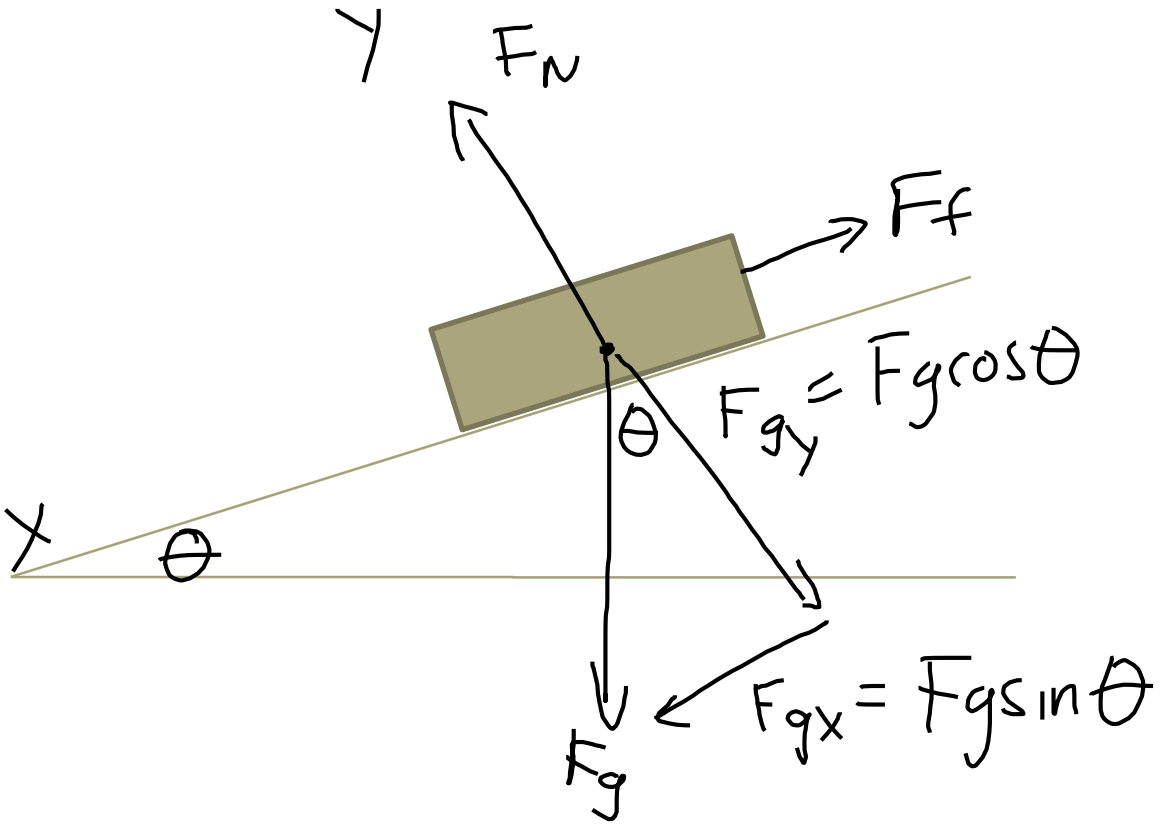
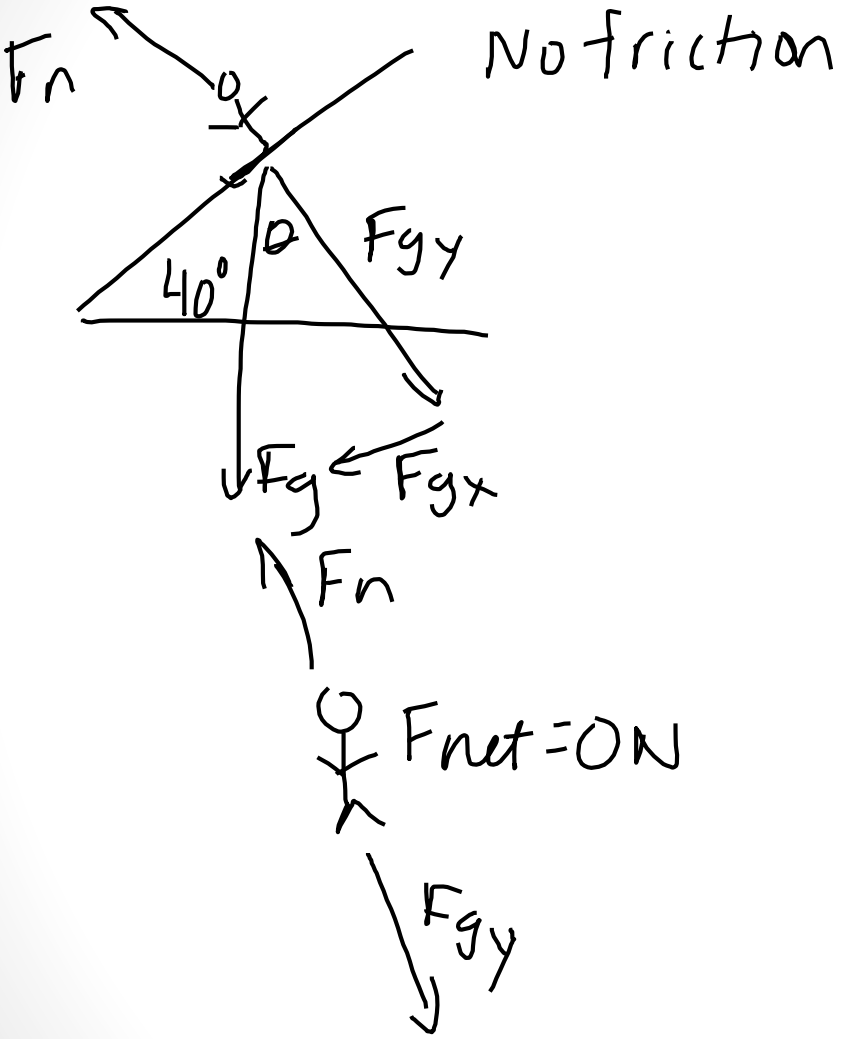
The Inclined Plane

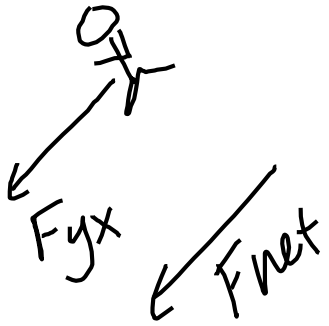
Motion on a ramp inclined at an angle can be analyzed using vectors.

Drawing a free body diagram is essential.



Ex. What is the acceleration of a skier down a 40° hill?





$\theta = 40^\circ$

$F_{net} = F_{gx}$

$ma = mg\sin\theta$

$a = g\sin\theta$

$a = (9.8)\sin 40^\circ$

$a = 6.3\ m/s^2$

Ex. A 50 kg person slides down a slide at an angle of 50° to the horizontal. If the coefficient of friction is 0.3 between the child and the slide, what is her acceleration?

What No

You will use a car on a ramp to determine the value of the coefficient of kinetic friction, μ_k. Don't forget the ± for the accepted value.

You may have: Ramp, Rulers, Stopwatch, Car, Electronic Balance

What Now?

- How could you find the coefficient of static friction?

- Hmwk: p. 82 # 2, 3; p. 83 # 4, 6