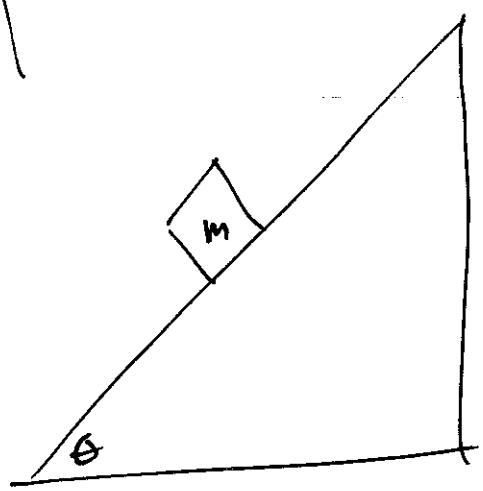

(e) Demonstrate that if $\theta = 90°$, the free-body diagram, net force, and acceleration are identical to that for a block in free-fall

- A block of mass m is on a frictionless ramp with angle of incline θ.

(a) - Draw a free-body diagram for the block in terms of θ, g, and m.

(b) Determine the net force acting on the block in terms of θ, g, and m.

(c) Determine the acceleration of the block in terms of θ and g.

(d) - Demonstrate that if $\theta = 0$, the free-body diagram, net force, and acceleration are identical to that of a box at rest on a flat surface

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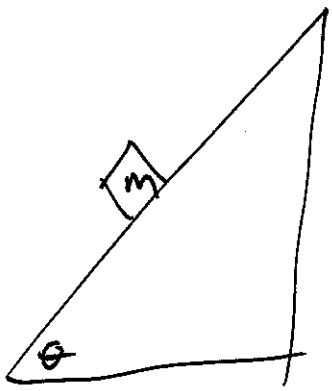

- A block of mass m is on a ramp with angle of incline θ. The surface of the ramp and block have a coefficient of kinetic friction μ_K.

- ~~Determine~~

(a) Draw a free-body diagram of the block in terms of m, g, θ, and μ_K.

(b) Determine the net force acting on the block in terms of m, g, θ, and μ_K.

(c) Determine the acceleration of the block in terms of g, θ, and μ_K.

(d) - Demonstrate that if $\mu_K = 0$, the free-body diagram, net force, and acceleration are identical to that of a block on a frictionless ramp (the previous problem).