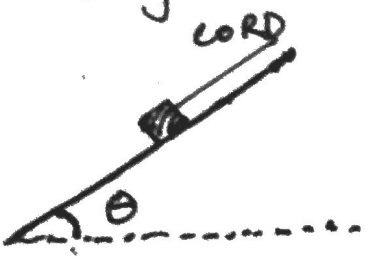
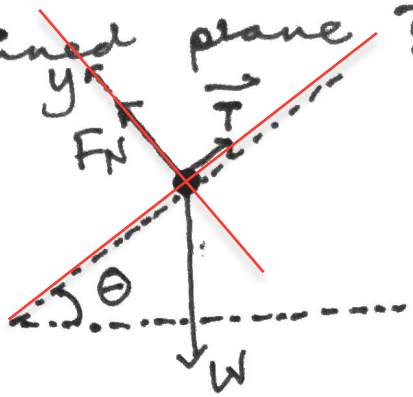
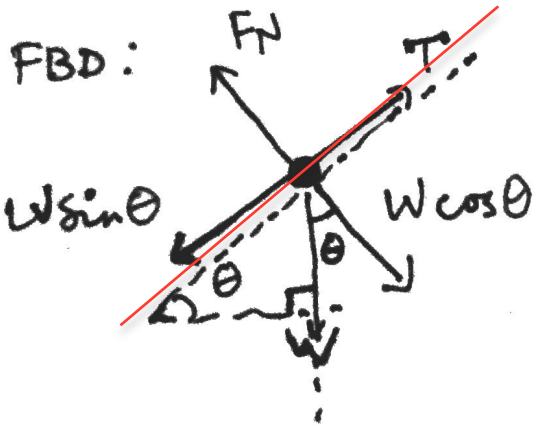
Ex. 2

Cord accelerates block up a ramp. A cord pulls a box of sea biscuits up along a frictionless plane inclined at $\theta = 30°$. The box has mass $m = 5$ kg, and the force from the cord has magnitude $T = 25$ N. What is the box's acceleration component a along the inclined plane?







N-2 law (y-axis):

$F_{(net,y)} = ma_{(y)}$

$F_{(N)} - W\cos(\theta) = m(0)$

$F_{(N)} - W\cos(\theta) = 0$

$F_{(N)} = W\cos(\theta)$

We need acceleration component a along the plane., Hence, apply N-2 law along the plane.

$$T - W\sin\theta = ma$$

$$T - mg\sin\theta = ma$$

$$a = \square \ ms^{-2}. \ //$$