

YOU MUST DRAW FREE BODY DIAGRAMS!!!! And WRITE NET FORCE EQUATIONS

1. I am traveling along a level road at 10 m/s in my 1500 kg car. If the car stalls and coasts to a stop in 100 meters, what is the magnitude of the frictional force on the car?

FBD:



$\Sigma F_x:$	
$\Sigma F_y:$	

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2. What is the acceleration of the system? (Assume it will move.) Coefficient of kinetic friction is 0.3.

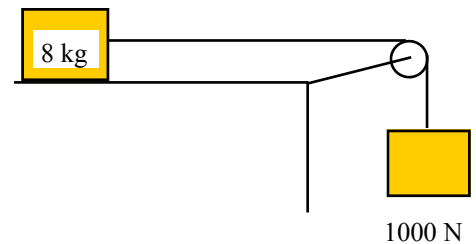
FBDs:



$\Sigma F_x:$	
$\Sigma F_y:$	



$\Sigma F_y:$	
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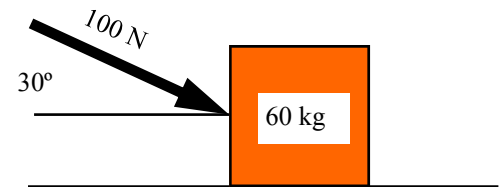
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3. What is the acceleration of the camel bed shown in the diagram? Coefficients of friction are 0.4 static and 0.3 kinetic. How fast will the 60 kg camel bed be moving after 3 seconds?

FBD:



$\Sigma F_x:$	
$\Sigma F_y:$	

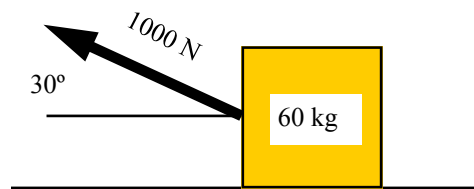


4. What is the acceleration of the camel bed? Coefficients of friction are 0.4 static and 0.3 kinetic. How long will it take the 60 kg camel bed to be moving at 30 m/s to the **left**?

FBD:



$\Sigma F_x:$	
$\Sigma F_y:$	



5. If you horizontally push on a box which has a **weight** of 200 N with a horizontal force that is 200 N greater than the force required to make it move, what is its acceleration? $\mu_s = 0.4$ $\mu_k = 0.3$

FBD:



$\Sigma F_x:$	
$\Sigma F_y:$	

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6. After a long day you accidentally leave your book about camels on top of your car. If the coefficient of static friction between the book and your car is 0.23, then how much time will it take you to bring your car, traveling at 26 m/s, to a stop so as to keep the book from sliding off the roof of the car?

FBD:



$\Sigma F_x:$	
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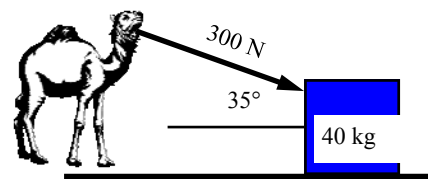
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7. A camel pushes a 40 kg box of camel treats along a surface with of force of 300 N as shown in the picture. What is the acceleration of the box of treats? Assume it moves. $\mu_k = 0.2$

FBD:



$\Sigma F_x:$	
$\Sigma F_y:$	



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