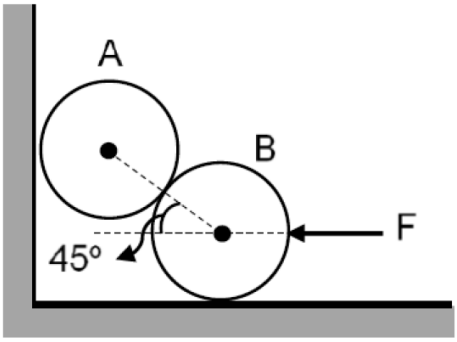
Pr #1



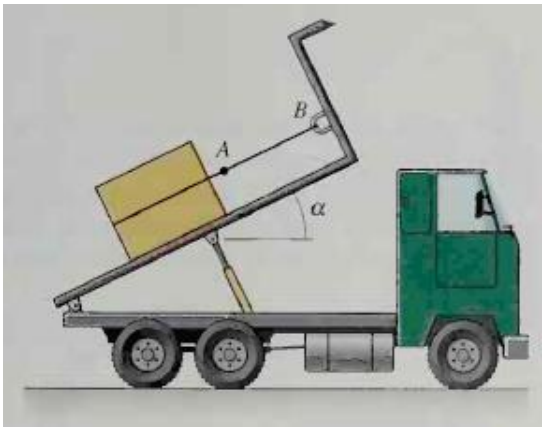
Cylinders A and B, that have masses of *mA=10 kg* ve *mB=20 kg*, have been supported by a force $\vec{F}$. Find the magnitude of the force and the reaction forces on the surfaces.

(All surfaces are frictionless)

Pr #2

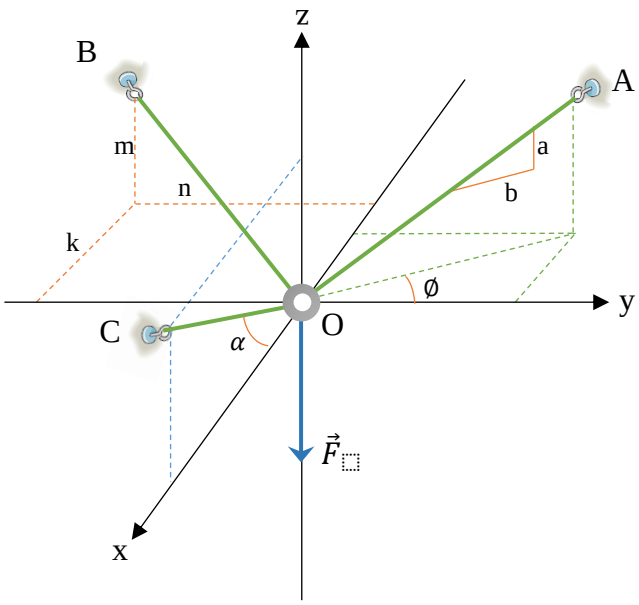
The 600 N box is placed on a smooth bed of the dump truck by the rope AB.

a) If $\propto = 25^o$, what is the tension in the rope?
b) If the rope will safely support of tension 400 N, what is the maximum allowable value of $\propto$?



Pr #3

$\vec{F}$ is applied to the ring at *O* which has supported by the cables *OA*, *OB* and *OC* as shown in the figure.



a) Write $\vec{F}$ and cable forces in Cartesian vector notation. ***(10p)***

b) Determine the force developed in each cable. ***(8p)***

c) What is the angle between cables *OA* and *OB*. ***(4p)***

d) Determine the magnitude of the projected component of $\vec{F}$ along the cable *OB*. ***(3p)***

[*PLO:1,2*]

Choose your values from the Table 2 according to your group, fill your values to the bottom table and solve the problem using your values.

Group	*F*	$\alpha(alfa)$	ø	*a*	*b*	k	m	n

Group Criteria **:** The last two digits of the student number is between the first (included) and the second number (included). For example, if the student number is ***383198*** (last two digits are 98), corresponding group is ***95-99.***

Table 2. Values for problem 2.

Group	***F***	$\boldsymbol{\alpha(alfa)}$	ø	***a***	***b***	**K**	**M**	**N**
00-04	*500 N*	*25°*	*70°*	*3*	*4*	*3 m*	*4 m*	*5 m*
05-09	*600 N*	*30°*	*65°*	*5*	*12*	*4 m*	*3 m*	*5 m*
10-14	*700 N*	*35°*	*60°*	*7*	*24*	*3 m*	*5 m*	*4 m*
15-19	*800 N*	*40°*	*55°*	*8*	*15*	*4 m*	*5 m*	*3 m*
20-24	*900 N*	*45°*	*50°*	*3*	*4*	*5 m*	*3 m*	*4 m*
25-29	*400 N*	*50°*	*45°*	*5*	*12*	*5 m*	*4 m*	*3 m*
30-34	*500 N*	*55°*	*40°*	*7*	*24*	*3 m*	*4 m*	*6 m*
35-39	*600 N*	*60°*	*35°*	*8*	*15*	*3 m*	*6 m*	*4 m*
40-44	*700 N*	*65°*	*30°*	*3*	*4*	*4 m*	*3 m*	*6 m*
45-49	*800 N*	*70°*	*25°*	*5*	*12*	*4 m*	*5 m*	*6 m*
50-54	*900 N*	*25°*	*70°*	*7*	*24*	*5 m*	*3 m*	*6 m*
55-59	*400 N*	*30°*	*65°*	*8*	*15*	*5 m*	*6 m*	*3 m*

Pr #4

The 200 kg slider at A is held in place on the smooth vertical bar by the cable AB. Determine the tension in the cable and the force exerted on the slider by the bar.