A stick figure is pushing three boxes across the screen. The mass of the blue box is 77kg, the mass of the red box is 79kg and the mass of the yellow box is 64kg.

What is the friction force on the blue box?
____384,8_____Newtons

What is the friction force on the red box?
___394,8 _____Newtons
What is the friction force on the yellow box?
__319,9 _____Newton
Once the boxes are moving, the stick figure finds that if he pushes with a force of 2156N, the boxes have an acceleration of 4.8m/s². What is the coefficient of kinetic friction, μk?
Solution

$$(m_1 + m_2 + m_3)a = F - F_{fr}$$

force the stick figure have to push to get the boxes moving

$$F = 2156\text{N} = (77 + 79 + 64)4.8 + \mu_k(77 + 79 + 64)9.8$$
$$= (77 + 79 + 64)(4.8 + 9.8\mu_k) \gg 9{,}8 = 4.8 + 9.8\mu_k \gg \mu_k = 0{,}51$$

$$F_{fr}(B) = 0{,}51 * 9.8 * 77 = 384{,}8\ \text{N}$$

$$F_{fr}(R) = 0{,}51 * 9.8 * 79 = 394{,}8\ \text{N}$$

$$F_{fr}(Y) = 0{,}51 * 9.8 * 64 = 319{,}9\ \text{N}$$