6.17. **Model:** We assume that the safe is a particle moving only in the $x$-direction. Since it is sliding during the entire problem, we can use the model of kinetic friction.

**Visualize:**

<table>
<thead>
<tr>
<th>Known</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>$F_B = 350$ N</td>
<td>$F_C = 385$ N</td>
</tr>
<tr>
<td>$m = 300$ kg</td>
<td></td>
</tr>
</tbody>
</table>

**Find**

| $\mu_k$       |                  |

**Solve:** The safe is in equilibrium, since it’s not accelerating. Thus we can apply Newton’s first law in the vertical and horizontal directions:

\[
(F_{\text{net}})_x = \Sigma F_x = F_B + F_C - f_k = 0 \quad \Rightarrow \quad f_k = F_B + F_C = 350 \text{ N} + 385 \text{ N} = 735 \text{ N}
\]

\[
(F_{\text{net}})_y = \Sigma F_y = n - F_G = 0 \quad \Rightarrow \quad n = F_G = mg = (300 \text{ kg})\left(9.80 \text{ m/s}^2\right) = 2.94 \times 10^3 \text{ N}
\]

Then, for kinetic friction:

\[
f_k = \mu_k n \quad \Rightarrow \quad \mu_k = \frac{f_k}{n} = \frac{735 \text{ N}}{2.94 \times 10^3 \text{ N}} = 0.250
\]

**Assess:** The value of $\mu_k = 0.250$ is hard to evaluate without knowing the material the floor is made of, but it seems reasonable.