In[•]:=
$$\text{NuFlatPlate} = \left(0.825 + \frac{0.387\ \text{Ra}_L^{1/6}}{\left(1 + \left(\frac{0.492}{\text{Pr}}\right)^{9/16}\right)^{8/27}}\right)^2;$$

In[•]:=
$$\text{NuHorzCylinder} = \left(0.6 + \frac{0.387\ \text{Ra}_D^{1/6}}{\left(1 + \left(\frac{0.559}{\text{Pr}}\right)^{9/16}\right)^{8/27}}\right)^2;$$

In[•]:=
$$L = 5\,D;\ \text{Ra}_L = \frac{g\,\beta\,(Tw - T0)\,L^3}{\nu\,\alpha};\ \text{Ra}_D = \frac{g\,\beta\,(Tw - T0)\,D^3}{\nu\,\alpha};$$

In[•]:=
$$\text{hFlatPlate} = \text{NuFlatPlate}\,\frac{\kappa}{L}\ //\ \#\ /.\ \text{Pr} \to 0.71\ \&$$

Out[•]=
$$\frac{\kappa\left(0.825 + 0.725426\left(\frac{D^3\,g\,(-T0+Tw)\,\beta}{\alpha\,\nu}\right)^{1/6}\right)^2}{5\,D}$$

In[•]:=
$$\text{hHorzCylinder} = \text{NuHorzCylinder}\,\frac{\kappa}{D}\ //\ \#\ /.\ \text{Pr} \to 0.71\ \&$$

Out[•]=
$$\frac{\kappa\left(0.6 + 0.321277\left(\frac{D^3\,g\,(-T0+Tw)\,\beta}{\alpha\,\nu}\right)^{1/6}\right)^2}{D}$$

In[•]:=
$$\text{hRatio} = \text{hFlatPlate} / \text{hHorzCylinder}\ //\ \text{Simplify}[\#]\ \&$$

Out[•]=
$$\frac{\left(0.825 + 0.725426\left(\frac{D^3\,g\,(-T0+Tw)\,\beta}{\alpha\,\nu}\right)^{1/6}\right)^2}{5\left(0.6 + 0.321277\left(\frac{D^3\,g\,(-T0+Tw)\,\beta}{\alpha\,\nu}\right)^{1/6}\right)^2}$$

In[•]:=
$$\text{Plot}\left[\text{Evaluate}\left[\text{hRatio}\ /.\ g \to \left(\text{Ra}\,\nu\,\alpha / \left(\beta\,(Tw - T0)\,D^3\right)\right)\right], \{\text{Ra}, 10\text{^}0, 10\text{^}12\},\right.$$
$$\left.\text{AxesLabel} \to \left\{\text{Ra}, \frac{h_1}{h_2}\right\}, \text{ScalingFunctions} \to \{\text{"Log"}\}, \text{GridLines} \to \text{Automatic}\right]$$

Out[•]=