PROB. 13-18

FIND VIEW FACTORS FOR VERY LONG GROOVES TO SURROUNDINGS.

a) SEMICYLINDRICAL

Reciprocity:

\[ A_1 F_{12} = A_2 F_{21} \]

\[ F_{12} = \frac{A_2}{A_1}, \quad F_{21} = \frac{A_2}{A_1} \quad \text{since} \quad F_{21} = 1 \]

\[ A_1 = \frac{1}{2} \pi DL, \quad A_2 = DL \]

\[ F_{12} = \frac{DL}{\frac{1}{2} \pi DL} = \frac{2}{\pi} = 0.6366 \]

b) TRIANGULAR GROOVE

\[ F_{12} = \frac{A_2}{A_1} \]

\[ A_1 = 2bL, \quad A_2 = aL \]

\[ F_{12} = \frac{aL}{2bL} = \frac{a}{2b} \]

c) RECTANGULAR GROOVE

\[ F_{12} = \frac{A_2}{A_1} \]
PROB. 13-18

\[ A_1 = 2bL + aL, \quad A_2 = aL \]

\[ f_{12} = \frac{aL}{2bL + aL} = \frac{a}{2b + a} \]