

For both cases

$$P_L = P_{max} \frac{1 + \frac{\Delta R_s}{R_s}}{\left(1 + \frac{\Delta R_s}{2R_s}\right)^2 + \left(\frac{\Delta X_s}{2R_s}\right)^2}$$

$$2) \frac{P_L}{P_{max}} = \boxed{\frac{1 + \frac{\Delta R_s}{R_s}}{\left(1 + \frac{\Delta R_s}{2R_s}\right)^2 + \left(\frac{\Delta X_s}{2R_s}\right)^2}} \quad (\text{Ans})$$

3) (if) $\Delta X_s = 0$

$\frac{\Delta R_s}{R_s}$	$\frac{P_L}{P_{max}}$
5% (0.05)	
$\rightarrow \frac{\Delta R_s}{R_s} = 0.05$	$\rightarrow 0.9994 \rightarrow 99.94\%$
$\rightarrow \frac{\Delta R_s}{R_s} = -0.05$	$\rightarrow 0.9993 \rightarrow 99.93\%$
10%	
$\rightarrow \frac{\Delta R_s}{R_s} = 0.1$	$\rightarrow 0.9977 \rightarrow 99.77\%$
$\rightarrow \frac{\Delta R_s}{R_s} = -0.1$	$\rightarrow 0.9972 \rightarrow 99.72\%$
20%	
$\rightarrow \frac{\Delta R_s}{R_s} = 0.2$	$\rightarrow 0.9917 \rightarrow 99.17\%$
$\rightarrow \frac{\Delta R_s}{R_s} = -0.2$	$\rightarrow 0.9877 \rightarrow 98.77\%$
50%	
$\rightarrow \frac{\Delta R_s}{R_s} = 0.5$	$\rightarrow 0.96 \rightarrow 96\%$
$\rightarrow \frac{\Delta R_s}{R_s} = -0.5$	$\rightarrow 0.8888 \rightarrow 88.88\%$