

$$\begin{aligned}
 \textcolor{red}{a} = f(x, y, R, s, d) &= \frac{2y^2 R - (R - x)\Delta}{2(y^2 + (R - x)^2)} \\
 &\pm \frac{y \left[4(y^2 R^2 - R(R - x)\Delta + y^2(s^2 - R^2) + (s^2 - R^2)(R - x)^2) - \Delta^2 \right]^{\frac{1}{2}}}{2(y^2 + (R - x)^2)}
 \end{aligned}$$

Where $\Delta = x^2 + y^2 + s^2 - d^2 - R^2$.