

## Magnification Calculation for Binary Lens

Define equation for magnification by assigning the equations: partial zeta with respect to conjugate of z, and the determinant of the Jacobian.

```
dzeta = (m - dm) / ((Conjugate[z1] - Conjugate[z]) ^ 2) + (m + dm) / ((Conjugate[z2] - Conjugate[z]) ^ 2)  
detJ = Refine[Simplify[1 - dzeta * Conjugate[dzeta]], {z1, z2, m, dm} ∈ Reals]
```

$$\frac{-dm + m}{(-\text{Conjugate}[z] + \text{Conjugate}[z1])^2} + \frac{dm + m}{(-\text{Conjugate}[z] + \text{Conjugate}[z2])^2}$$
$$1 - \left( \frac{-dm + m}{(z - z1)^2} + \frac{dm + m}{(z - z2)^2} \right) \left( \frac{-dm + m}{(-z1 + \text{Conjugate}[z])^2} + \frac{dm + m}{(-z2 + \text{Conjugate}[z])^2} \right)$$