

# 1 The classic option

Theorem (Residue Theorem). *Let  $f$  be analytic in the region  $G$  except for the isolated singularities  $a_1, a_2, \dots, a_m$ . If  $\gamma$  is a closed rectifiable curve in  $G$  which does not pass through any of the points  $a_k$  and if  $\gamma \approx 0$  in  $G$ , then*

$$\frac{1}{2\pi i} \int_{\gamma} f(x^{\mathbf{N} \in \mathbb{C}^{N \times 10}}) = \sum_{k=1}^m n(\gamma; a_k) \operatorname{Res}(f; a_k).$$

Theorem (Maximum Modulus). *Let  $G$  be a bounded open set in  $\mathbb{C}$  and suppose that  $f$  is a continuous function on  $\overline{G}$  which is analytic in  $G$ . Then*

$$\max \left\{ |f(z)| : z \in \overline{G} \right\} = \max \{ |f(z)| : z \in \partial G \}$$

First some large operators both in text:  $\iiint_Q f(x,y,z)\,dx\,dy\,dz$  and  $\prod_{\gamma\in\Gamma_{\tilde{C}}}\partial(\tilde{X}_{\gamma})$ ;

and also on display

$$\iiint_Q f(w,x,y,z)\,dw\,dx\,dy\,dz\leq \oint_{\partial Q} f'\left(\max\left\{\frac{\|w\|}{|w^2+x^2|};\frac{\|z\|}{|y^2+z^2|};\frac{\|w\oplus z\|}{|x\oplus y|}\right\}\right).$$