13.6 : 16. $\sin z = 100$

$$\frac{e^{iz} - e^{-iz}}{2i} = 100$$

$$e^{iz} - e^{-iz} = 200i \quad \leftarrow \text{Mult by } e^{iz}$$

$e^{-iz} \uparrow 1/e^{iz}$

$$(e^{iz})^2 - 1 = 200i e^{iz} \quad \leftarrow \text{quadratic in } e^{iz}$$

$e^{iz} =$ "quad. formula"

$iz = \log(\quad)$

13.6 : 1 ; $\cosh z = \dfrac{e^z + e^{-z}}{2}$ $\qquad z = x + iy$

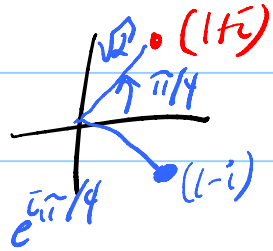
$$= \frac{e^x e^{iy} + e^{-x} e^{-iy}}{2}$$

$e^{iy} = \cos y + i \sin y$

$e^{-iy} = \cos y - i \sin y$

13.7 : 23. $(1+i)^{1-i} = e^{(1-i)\,\mathrm{Log}(1+i)}$ $\leftarrow$ Principal branch Log

$u^v = e^{\ln u^v} = e^{v \ln u}$



$(1+i) = \sqrt{2}\, e^{i\pi/4}$

$$\text{Log}(1+i) = \ln\sqrt{2} + i\frac{\pi}{4}$$

$$e^{(1-i)\left[\ln\sqrt{2} + i\frac{\pi}{4}\right]}$$

$$= e^{\ln\sqrt{2} + \pi/4 \; - i(\ln 2 - \pi/4)}$$

$$= e^{\ln\sqrt{2}} \; e^{\pi/4} \; e^{-i(\cdots)}$$

$$= \sqrt{2} \; e^{\pi/4} \; e^{-i(\cdots)}$$

$$e^{-i\pi/4} = \frac{1-i}{\sqrt{2}}$$