

Quiz 1 (20 pts.), Name: _____

1. Write the infinite series expansion for e^x ?

$$e^x = 1 + x + x^2/2! + x^3/3! + x^4/4! + x^5/5! + x^6/6! + \dots$$

2. a) Write the infinite series expansion for $\sinh x = x + x^3/3! + x^5/5! + x^7/7! + \dots$

b) Write the infinite series expansion for $\cos x = 1 - x^2/2! + x^4/4! - x^6/6! + \dots$

3. For the complex number $z = \sqrt{3} + i = re^{i\theta}$, find $r = 2$ and $\theta = \tan^{-1} \frac{1}{\sqrt{3}} = \frac{\pi}{6}$ for the polar form.

4. For the hyperbolic number $w = 5 + 3u = \rho e^{u\phi}$, find $\rho = 4$ and $\phi = \tanh^{-1} \frac{3}{5} \cong 0.69315$ for the hyperbolic polar form.