

## Fysiikan matematiikka: Harjoitus 6

1. a)  $-2 - 10i$       b)  $\frac{-5+i}{4}$       c)  $\frac{3+2i}{13}$       d)  $2\sqrt{26}$
2. a)  $\sqrt{8}e^{-i\frac{\pi}{4}}$       b)  $2e^{i\frac{2\pi}{3}}$       c)  $4e^{i\frac{7\pi}{6}}$       d)  $\sqrt{2}e^{i\frac{\pi}{2}}$
3. a)  $2e^{-i\frac{\pi}{2}}$       b)  $8e^{i\frac{\pi}{4}}$       c) 1
4.  $z_1 = 1$        $z_2 = \frac{-1+\sqrt{3}i}{2}$        $\frac{-1-\sqrt{3}i}{2}$
5. a)  $\sum_{n=0}^{\infty} \frac{e^{2n} x^n}{n!}$       b)  $\sum_{n=0}^{\infty} \frac{x^{2n+3}}{n!}$       c)  $\ln 2 + \sum_{n=1}^{\infty} \frac{(-1)^{n-1} x^{2n}}{2^n n}$