

### Exercise 3

Show that

- (a)  $\operatorname{Res}_{z=z_n}(z \sec z) = (-1)^{n+1} z_n$  where  $z_n = \frac{\pi}{2} + n\pi$  ( $n = 0, \pm 1, \pm 2, \dots$ );
- (b)  $\operatorname{Res}_{z=z_n}(\tanh z) = 1$  where  $z_n = \left(\frac{\pi}{2} + n\pi\right) i$  ( $n = 0, \pm 1, \pm 2, \dots$ ).