Example 1.1

Q $z_1 = 3+2i$

$z_2 = 1-i$

$\frac{z_1}{z_2} = ?$ $\quad a=3 \quad b=2 \quad c=1 \quad d=-1$

Solution $\frac{z_1}{z_2} = \left(\frac{ac+bd}{c^2+d^2}, \frac{bc-ad}{c^2+d^2}\right)$

$= \left(\frac{3-2}{1+1}, \frac{2+3}{1+1}\right) = \left(\frac{4-2}{4+1}, \frac{2+3}{4+1}\right)$

$= \left(\frac{1}{2}, \frac{5}{2}\right) = \left(\frac{2}{5}, 1\right)$

$= \frac{1}{2} + \frac{5}{2}i$