3.39
1

(k) $|z-3| = |z-1-i|$

$\sqrt{(x-3)^2+y^2} = \sqrt{(x-1)^2+(y-1)^2}$

$x^2-6x+9+y^2 = x^2-2x+1+y^2-2y+1$

$2y = 4x-7$ 2p

(7) $z^3 = -8 = 8\,\mathrm{cis}\,180$

$z_i = \sqrt[3]{8}\,\mathrm{cis}\left(\frac{180+360k}{3}\right)$

$z_0 = 2\,\mathrm{cis}\,60 = 2\left(\frac{1}{2}+\frac{\sqrt{3}}{2}i\right) = 1+\sqrt{3}i$

$z_1 = 2\,\mathrm{cis}\,180 = -2$

$z_2 = 2\,\mathrm{cis}\,300 = 2\left(+\frac{1}{2}-\frac{\sqrt{3}}{2}i\right) = 1-\sqrt{3}i$

$z_0+z_1+z_2+z_0\cdot z_1\cdot z_2 = 1+\sqrt{3}i-2+1-\sqrt{3}i+2\,\mathrm{cis}\,60\cdot 2\,\mathrm{cis}\,180\cdot 2\,\mathrm{cis}\,300 =$

$= 0+8\,\mathrm{cis}\,180 = -8$