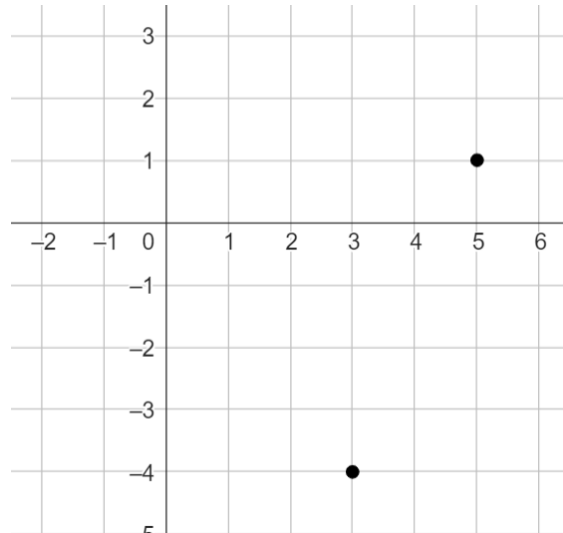(1) The complex number z is represented by the point P on the Argand diagram.
Given that $|z + 4i| = 2$, find the range of values of $\arg(z + 2 + 2i)$ in the interval $(-\pi, \pi)$.

(2) A quartic equation has roots α, β, γ and δ.
Two of the roots of the equation are shown on an Argand diagram below.

Find the value of $\sum \alpha\beta$.

(3) Find a fully simplified expression for

$$\sum_{r=1}^{2n} (r - 1)\,(r^2 + r + 1)$$

(4) The equation $3x^3 - x + 1 = 0$ has roots α, β and γ. Show that $\alpha^3 + \beta^3 + \gamma^3 + 1 = 0$

(5) The complex number z satisfies $|z + 2 + 4i| = |z - 2 - 8i|$ and $|z| = 6$.
Express the possible values of z in the form $r(\cos\theta + i\sin\theta)$ giving any non-exact values to 3SF.