

(1) Let $z = 2 + 3i$ and let $w = 1 - 2i$. Find:

(a) $2z$

(b) $z + w$

(c) $z - w$

(d) iz

(e) zw

(f) z^2

(g) z/w

(2) Find all zeros of the polynomials $P(x) = x^6 - 3x^4 - 10x^2$.

(3) Factor the polynomial $P(x) = x^4 + 3x^2 - 4$ completely.

(4) Find a polynomial of degree 4 with integer coefficients with zeros $1 - i$, $2 + i$.