Quick Assignment 5

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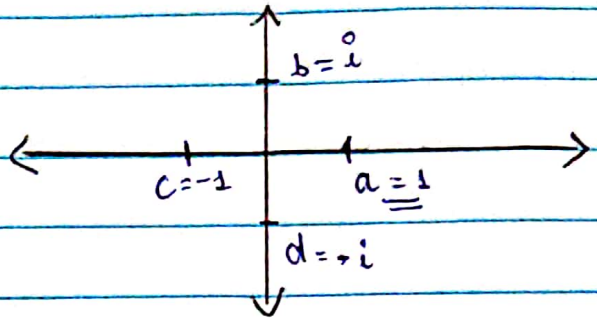
(1)



(2) $b = a * i \Rightarrow b = 1 \times i = i$

(ii) $c = b * i \Rightarrow c = i \times i = i^2 = -1$

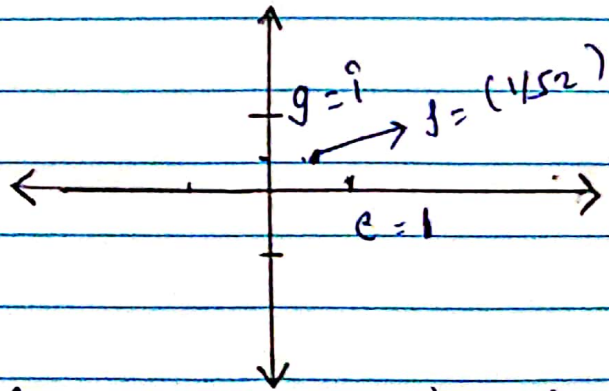
(iii) $d = c * i \Rightarrow d = -1\, i = -i$

(iv) $a = d * i \Rightarrow a = -i \times i = -(i^2) = -(-1) = 1$.

(3) (i) $e = 1$

(ii) $f = (1/\sqrt{2}) + (1/\sqrt{2})\, i$.

(iii) $g = i$.



$f * f = \left((1/\sqrt{2}) + (1/\sqrt{2})\, i\right) * \left((1/\sqrt{2}) + (1/\sqrt{2})\, i\right)$

$= \left[(1/\sqrt{2})\left[1 + i\right]\right]^2 = \frac{1}{2} \times \left[1 + i^2 + 2i\right]$

$= \frac{1}{2}\left[1 - 1 + 2i\right] = i$ = [f * f = g on graph i.e. moves 45°]