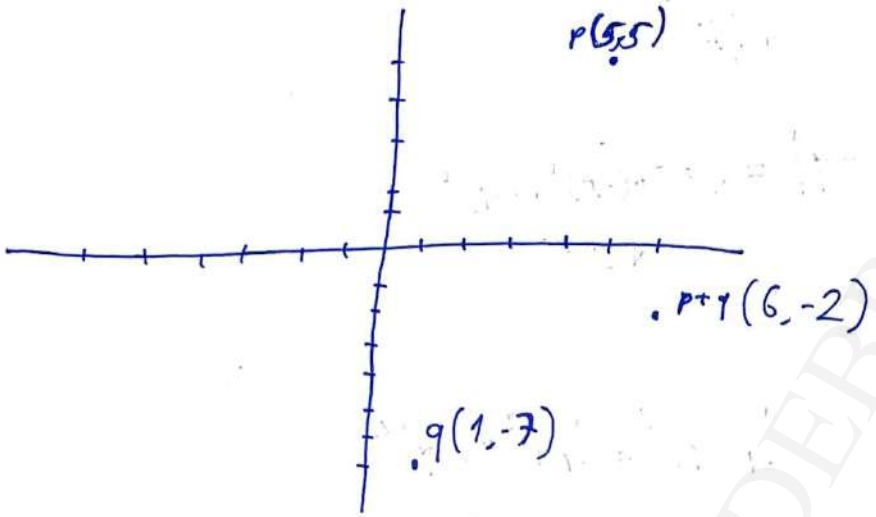
1) $p=(5,5)$ $q=(1,-7)$

$p+q=(6,-2)$ $p-q=(4,12)$



$|p|=\sqrt{5^2+5^2}=5\sqrt{2}$ $|q|=\sqrt{1^2+(-7)^2}=5\sqrt{2}$

$|p+q|=\sqrt{6^2+(-2)^2}=2\sqrt{10}$ $|p-q|=\sqrt{4^2+12^2}=4\sqrt{10}$

$|p+q|^2=(2\sqrt{10})^2=40$

$|p|^2=(5\sqrt{2})^2=50$

$|q|^2=(5\sqrt{2})^2=50$