1) $(2+3i)+(7-2i) \Rightarrow (2+7)+(3-2)i = 9+i$

2) $-(-3+5i)-(4+9i)$ 3) $2(5+4i)-3(7+4i)$

Subtraction: $(-2+3i)-(2+i)$

$(-2-2)+(3-1)i = -4+2i$

Multiplication:- $(2+3i)(7-2i)$ ✓

$(2)(7)-2(2i)+(3i)(7)+(3i)(-2i)$

$14-4i+21i+(-6)(-1) = 14+6+17i = 20+17i$

Complex Numbers of ordered pairs of Real Numbers

We can define complex Numbers also by using order pairs. Properties i) $(a,b)=(c,d) \Leftrightarrow a=c \wedge b=d$

(ii) $(a,b)+(c,d)=(a+c, b+d)$

(iii) if K is any real Number, then $K(a,b)=(Ka, Kb)$

iv) $(a,b)(c,d) = (ac-bd, ad+bc)$

v) $(a,b)-(c,d) = (a-c, b-d)$

Example: Addition, Subtraction and product of complex numbers $(8,9)$ and $(5,-6)$

Addition: Sum $= (8,9)+(5,-6)=(8+5, 9-6) = (13,3)$

Subtraction: Difference $=(8,9)-(5,-6)=(8-5, 9-(-6))=(3,15)$

Product $= (8,9)(5,-6) = [(8\times5)-(9\times-6), 8(-6)+9(5)]$

$= (40+54, 45-48) = (94,-3)$

Properties of ~~Fundamental~~ operations on Complex Numbers

~~Division~~ Questions 1) $(7,9)+(3,-5)$ 2) $(8,-5)-(-7,4)$ 3) $(0,3)(0,5)$

3) $(2,6)(3,7)$ 4) $(5,-4)(-3,-2)$