WS 1.3 Algebra 2 Name_____

Operations with Complex Numbers

Add and subtract.

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

2) $2-(8+5i)$ $-6-5i$
$2-8-5i$

3) $4+(1-i)$ $5-i$
$4+1-i$

4) $8-(-6-8i)$ $14+8i$
$8+6+8i$

5) $(2-8i)-(i)$ $2-9i$
$2-8i-i$

6) $7-(i)-(-4+3i)$

7) $(3+8i)+(6+i)$ $9+9i$
$3+8i+6+i$

8) $(8+i)+(-1+8i)$

9) $(7-5i)+(-8-6i)$ $-1-11i$
$7-5i-8-6i$

10) $(3+6i)-3+(3i)$

11) $(1-6i)+(-3-6i)$ $-2-12i$
$1-6i-3-6i$

12) $(8+2i)-(-6+3i)$

Multiply.

13) $(-4+5i)^2$ $(-4+5i)(-4+5i)$
$16-20i-20i+25i^2 = 16-40i-25 = \boxed{-9-40i}$

14) $(3-3i)(-8-i)$

15) $(4+5i)(8+8i)$ $32+32i+40i+40i^2$
$32+72i-40 = \boxed{-8+72i}$

16) $(-5+4i)(-6-2i)$

17) $(-3-3i)(2-2i)$ $-6+6i-6i+6i^2$
$-6-6 = \boxed{-12}$

18) $(-4+2i)^2$

Divide.

19) $\dfrac{7-4i}{-9-6i}$ $\cdot \dfrac{-9+6i}{-9+6i} = -\dfrac{1}{3}+\dfrac{2}{3}i$

20) $-\dfrac{9}{7i}$

21) $\dfrac{5}{-6+10i}$ $\cdot \dfrac{-6-10i}{-6-10i} = -\dfrac{15}{68}-\dfrac{25}{68}i$

22) $\dfrac{10}{1-2i}$

23) $\dfrac{7-6i}{i}$ $\cdot \dfrac{-i}{-i} = -6-7i$

24) $\dfrac{3}{9+4i}$

25) $-\dfrac{1}{5i}$
$\dfrac{-1}{5i}\cdot\dfrac{-5i}{-5i} = \dfrac{i}{5}$
OR $\dfrac{1}{-5i}\cdot\dfrac{5i}{5i} = \dfrac{i}{5}$

26) $\dfrac{1-5i}{5-4i}$