Math II Name_____ ID: 1

Add, Subtract and Multiply Complex Numbers

Date_____ Period____

Simplify. State if the solution is Wholly Real, Wholly Imaginary or has BOTH Real AND Imaginary Parts.

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

$-4+3i-1+i$

$-5+4i$ → Both Real and Imaginary parts

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

$3+4i-5-4i$

-2 → Wholly Real

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

$-1+4i-4+5$

$4i$ → Wholly Imaginary

4) $(-2 - i) - (-3 - i)$

$-2-i+3+i$

1 → Wholly Real

5) $(2 - 5i) - (-3 + i)$

$2-5i+3-i$

$5-6i$ → Both Real and Imaginary parts

6) $(-2 - 2i) + (-5 - 3i)$

$-2-2i-5-3i$

$-7-5i$ → Both Real and Imaginary parts

7) $(1 - i) - (2 - i)$

$1-i-2+i$

-1 → Wholly Real

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

$-3-3i+3-2i$

$-5i$ → Wholly Imaginary

9) $(1 - i) - (3 - 4i)$

$1-i-3+4i$

$-2+3i$ → Both Real and Imaginary parts

10) $(-5 + 5i) - (-5 + 4i)$

$-5+5i+5-4i$

i → Wholly Imaginary

Remember: $i^2 = -1$

11) $(-5 - 3i)(5 + 5i)$

$-25 - 25i - 15i - 15i^2 \rightarrow -1$

$-25 - 40i - 15(-1) \longrightarrow$

$-10 - 40i \rightarrow$ Both Real and Imaginary parts

13) $(-2 + 5i)(-5 - 4i)$

$10 + 8i - 25i - 20i^2 \rightarrow -1$

$10 - 17i - 20(-1)$

$30 - 17i \rightarrow$ Both Real and Imaginary parts

15) $(5 + 3i)(1 - 2i)$

$5 - 10i + 3i - 6i^2 \rightarrow -1$

$5 - 7i - 6(-1)$

$11 - 7i \rightarrow$ Both Real and Imaginary parts

17) $(3 + 3i)(4 - 4i)$

$12 - 12i + 12i - 12i^2 \rightarrow -1$

$12 - 12(-1)$

$24 \rightarrow$ Wholly Real

19) $(-3 + 4i)(-3 + 2i)$

$9 - 6i - 12i + 8i^2 \rightarrow -1$

$9 - 18i + 8(-1)$

$1 - 18i \rightarrow$ Both Real and Imaginary parts

12) $(-5 + i)(-1 + 5i)$

$5 - 25i - i + 5i^2 \rightarrow -1$

$5 - 26i + 5(-1)$

$-26i \rightarrow$ wholly imaginary

14) $(2 + 5i)(-4 - 5i)$

$-8 - 10i - 20i - 25i^2 \rightarrow -1$

$-8 - 30i - 25(-1)$

$17 - 30i \rightarrow$ Both Real and Imaginary parts

16) $(-3 + i)(1 - 3i)$

$-3 + 9i + i - 3i^2 \rightarrow -1$

$10i \rightarrow$ wholly imaginary

18) $(1 + i)(-5 + 5i)$

$-5 + 5i - 5i + 5i^2$

$-5 + 5(-1)$

$-10 \rightarrow$ wholly Real

20) $(4 - i)(-3 - 5i)$

$-12 - 20i + 3i + 5i^2 \rightarrow -1$

$-12 - 17i + 5(-1)$

$-17 - 17i \rightarrow$ Both Real and Imaginary parts