

Warmup:

$$1. \quad (4 + 5i) + (2 - 3i) = \underline{\underline{6 + 2i}} \quad \begin{array}{l} -6i - -8i \\ -6i + 8i \end{array}$$

$$2. \quad (3 - 6i) - (7 - 8i) = \underline{\underline{-4 + 2i}}$$

$+ -7 + 8i$

$$\star 3. \quad (4 + 5i) \cdot (2 - 3i) \quad \begin{array}{l} F = 8 \star \\ O = -12i \star \star \\ I = 10i \star \star \\ L = -15i^2 = -15(-1) = +15 \star \end{array} \quad \underline{\underline{= 23 - 2i}}$$

$$4. \quad (3 - 6i)(7 - 8i) \quad \begin{array}{l} F = 21 \\ O = -24i \\ I = -42i \\ L = 48i^2 = -48 \\ \quad \quad \quad +48(-1) \end{array} \quad \underline{\underline{= -27 - 66i}}$$

Algebra 2

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Name

key

HW #4 Multiplying Complex Numbers

Simplify.

1) $(5i)(-7i)(8i)$

$(-35i^2)(8i)$

$(-35 \cdot -1)(8i)$

$(35)(8i)$

$280i$

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

$(24i^2)(-i)$

$(24 \cdot -1)(-i)$

$(-24)(-i)$

$24i$

2) $(8i)(-7i)(6i) = -336i^3$

$(-56i^2)(6i)$

$-336(-i)$

$(-56 \cdot -1)(6i)$

$(56)(6i)$

$336i$

$336i$

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

$(-6i^2)(-2i)$

$(-6 \cdot -1)(-2i)$

$(6)(-2i)$

$-12i$

5) $(-5i)(8i)$

$$-40i^2$$

$$-40 \cdot -1$$

$$\boxed{40}$$

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

$$40i + 5i^2$$

$$40i + 5 \cdot -1$$

$$40i - 5 \text{ or } \boxed{-5 + 40i}$$

7) $(-3 + 5i)(7 + 8i)$

$$\begin{array}{ccccccc} \text{F} & & \text{O} & & \text{I} & & \text{L} \\ -21 & - & 24i & + & 35i & + & 40i^2 \end{array}$$

$$-21 + 11i + 40 \cdot -1$$

$$-21 + 11i - 40$$

$$\boxed{-61 + 11i}$$

8) $(1 - 6i)(7 + 4i)$

$$7 + 4i - 42i - 24i^2$$

$$7 - 38i - 24 \cdot -1$$

$$7 - 38i + 24$$

$$\boxed{31 - 38i}$$

$$\star 9) (3-2i)^2 = (3-2i) \cdot (3-2i)$$

$$9 - 6i - 6i + 4i^2$$

$$9 - 12i + 4 \cdot -1$$

$$9 - 12i - 4$$

$$5 - 12i$$

$$11) (-5+5i)(6-i)$$

$$-30 + 5i + 30i - 5i^2$$

$$-30 + 35i - 5 \cdot -1$$

$$-30 + 35i + 5$$

$$-25 + 35i$$

$$10) (-6+3i)(-3+7i)$$

$$18 - 42i - 9i + 21i^2$$

$$18 - 51i + 21 \cdot -1$$

$$18 - 51i - 21$$

$$-3 - 51i$$

$$\star 12) (4-6i)^2 = (4-6i)(4-6i)$$

$$16 - 24i - 24i + 36i^2$$

$$16 - 48i + 36 \cdot -1$$

$$16 - 48i - 36$$

$$-20 - 48i$$

$$13) (-2 - 3i)(-8 + 5i)$$

$$16 - 10i + 24i - 15i^2$$

$$16 + 14i - 15 \cdot -1$$

$$16 + 14i + 15$$

$$31 + 14i$$

$$* 15) (8 - 7i)^2 = (8 - 7i)(8 - 7i)$$

$$64 - 56i - 56i + 49i^2$$

$$64 - 112i + 49 \cdot -1$$

$$64 - 112i - 49$$

$$15 - 112i$$

$$* 14) (4 - 7i)^2 = (4 - 7i)(4 - 7i)$$

$$16 - 28i - 28i + 49i^2$$

$$16 - 56i + 49 \cdot -1$$

$$16 - 56i - 49$$

$$-33 - 56i$$

$$* 16) (5 - 6i)^2 = (5 - 6i)(5 - 6i)$$

$$25 - 30i - 30i + 36i^2$$

$$25 - 60i + 36 \cdot -1$$

$$25 - 60i - 36$$

$$-11 - 60i$$

$$17) (5 + 6i)(-3 + 5i)$$

$$-15 + 25i - 18i + 30i^2$$

$$-15 + 7i + 30 \cdot -1$$

$$-15 + 7i - 30$$

$$\boxed{-45 + 7i}$$

$$18) (-8 + 2i)^2 = (-8 + 2i)(-8 + 2i)$$

$$64 - 16i - 16i + 4i^2$$

$$64 - 32i + 4 \cdot -1$$

$$64 - 32i - 4$$

$$\boxed{60 - 32i}$$

Complex Nine Square

Complex Number Puzzle

Complex Maze

No new HW