## Unit 3 Lesson 13: Multiplying Complex Numbers

### 1 $i$ Squared (Warm up)

#### Student Task Statement

Write each expression in the form $a+bi$, where $a$ and $b$ are real numbers.

1. $4i⋅3i$
2. $4i⋅-3i$
3. $-2i⋅-5i$
4. $-5i⋅5i$
5. $\left(-5i\right)^{2}$

### 2 Multiplying Imaginary Numbers

#### Student Task Statement

Take turns with your partner to match an expression in column A with an equivalent expression in column B.

* For each match that you find, explain to your partner how you know it’s a match.
* For each match that your partner finds, listen carefully to their explanation. If you disagree, discuss your thinking and work to reach an agreement.

| A | B |
| --- | --- |
| $5⋅7i$ | -9 |
| $5i⋅7i$ | $35i$ |
| $3i^{2}$ | -35 |
| $\left(3i\right)^{2}$ | 1 |
| $8i^{3}$ | 9 |
| $i^{4}$ | -3 |
| $-i^{2}$ | -1 |
| $\left(-i\right)^{2}$ | $-8i$ |

### 3 Multiplying Complex Numbers

#### Student Task Statement

Write each product in the form $a+bi$, where $a$ and $b$ are real numbers.

1. $\left(-3+9i\right)\left(5i\right)$
2. $\left(8+i\right)\left(-5+3i\right)$
3. $\left(3+2i\right)^{2}$
4. $\left(3+2i\right)\left(3−2i\right)$



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