## Unit 3 Lesson 11: Introducing the Number $i$

### 1 Math Talk: Squared (Warm up)

#### Student Task Statement

Find the value of each expression mentally.

$\left(2\sqrt{3}\right)^{2}$

$\left(\frac{1}{2}\sqrt{3}\right)^{2}$

$\left(2\sqrt{-1}\right)^{2}$

$\left(\frac{1}{2}\sqrt{-1}\right)^{2}$

### 2 It is $i$

#### Images for Launch



#### Student Task Statement

Find the solutions to these equations, then plot the solutions to each equation on the imaginary or real number line.

1. $a^{2}=16$
2. $b^{2}=-9$
3. $c^{2}=-5$



### 3 The $i$’s Have It

#### Student Task Statement

Write these imaginary numbers using the number $i$.

1. $\sqrt{-36}$
2. $\sqrt{-10}$
3. $-\sqrt{-100}$
4. $-\sqrt{-17}$

### 4 Complex Numbers

#### Images for Launch



#### Student Task Statement

1. Label at least 8 different imaginary numbers on the imaginary number line.
* 
1. When we add a real number and an imaginary number, we get a **complex number**. The diagram shows where $2+i$ is in the complex number plane. What complex number is represented by point $A$?
* 
1. Plot these complex numbers in the complex number plane and label them.
	1. $-2−i$
	2. $-6+3i$
	3. $5+4i$
	4. $1−3i$



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