Unit 3 Lesson 11: Introducing the Number i

1 Math Talk: Squared (Warm up)

Student Task Statement

Find the value of each expression mentally.

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

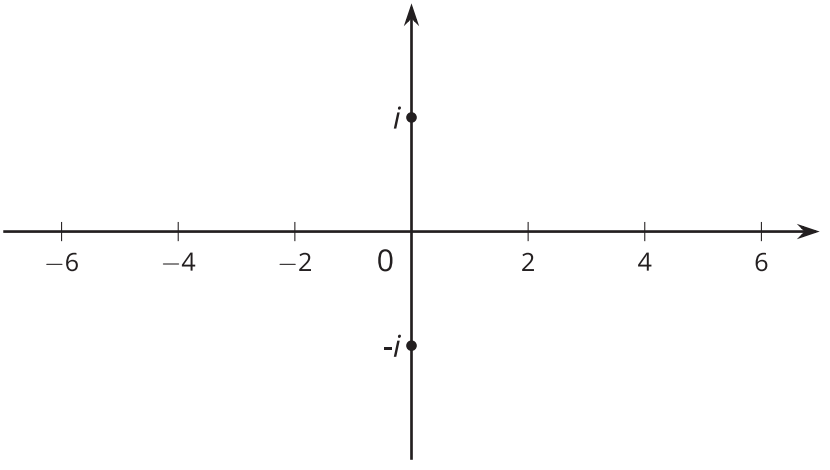
$\left(\frac{1}{2}\sqrt{3}\right)^2$

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

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

2 It is i

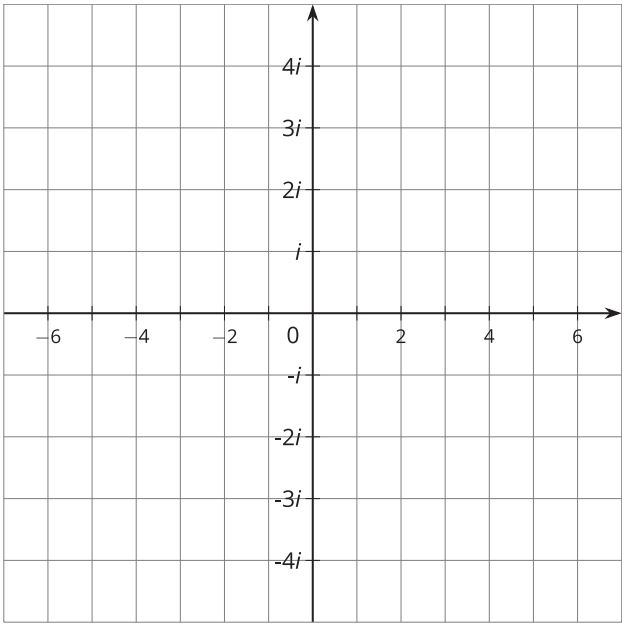
Images for Launch



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

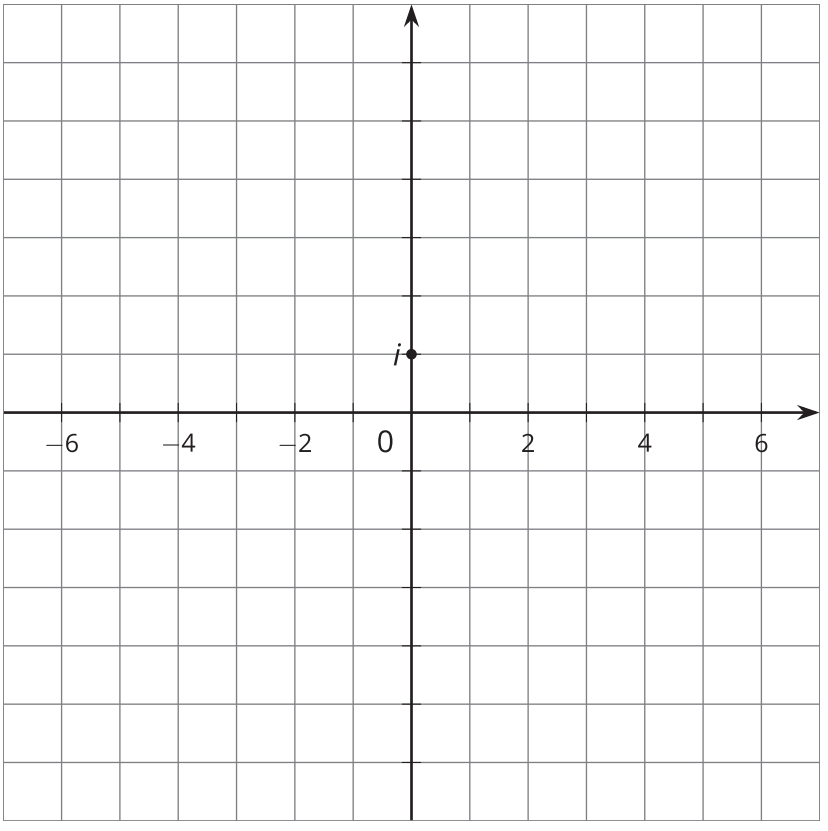
Student Task Statement

Write these imaginary numbers using the number i.

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

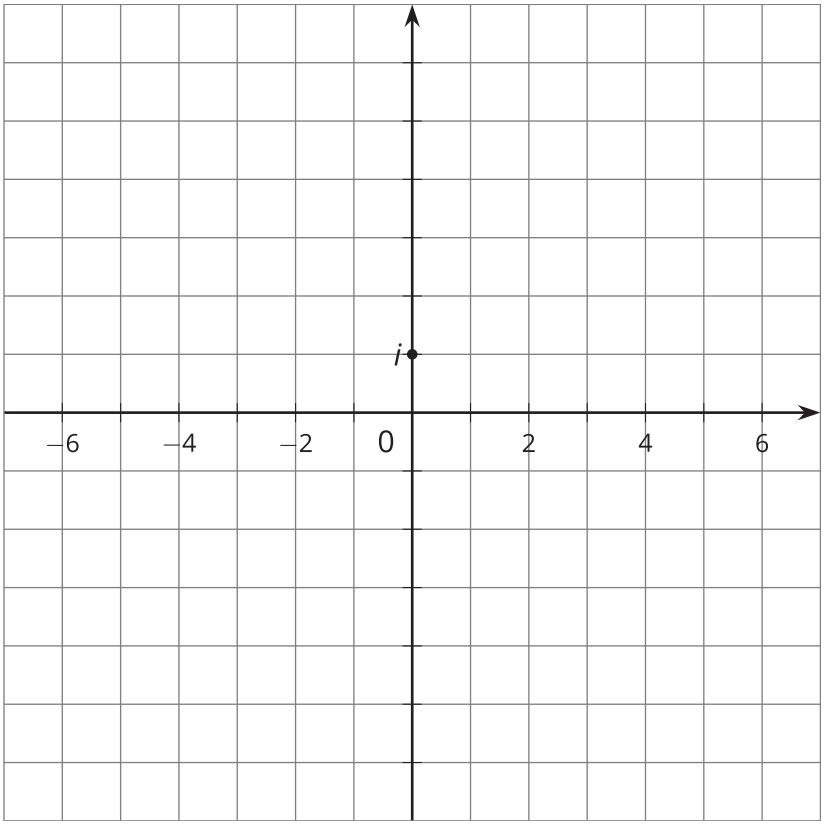
4 Complex Numbers

Images for Launch

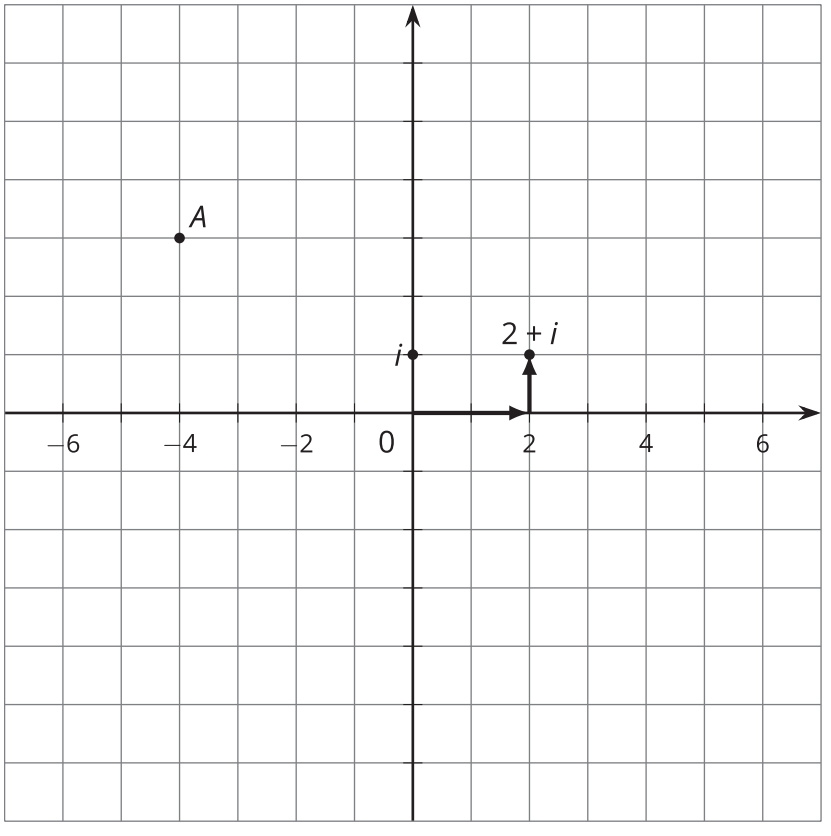


Student Task Statement

1. Label at least 8 different imaginary numbers on the imaginary number line.


i
−6
−4
−2
0
2
4
6

2. 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?



3. Plot these complex numbers in the complex number plane and label them.

   a. $-2 - i$

   b. $-6 + 3i$

   c. $5 + 4i$

   d. $1 - 3i$