

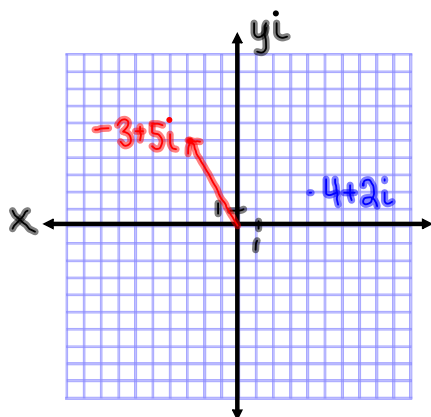
Complex Numbers

The set of complex numbers is the set that contains all numbers that can be written in the form $a+bi$, where a & b are real numbers and i is the imaginary unit.

$$\begin{array}{ccccccc} 2+5i & 4+20i & 3+\frac{1}{4}i & 7-5i & & & \\ & & & & & & 2.5+7i \\ \sqrt{5}-2i & 6-\pi i & 0+3i & & & & \end{array}$$

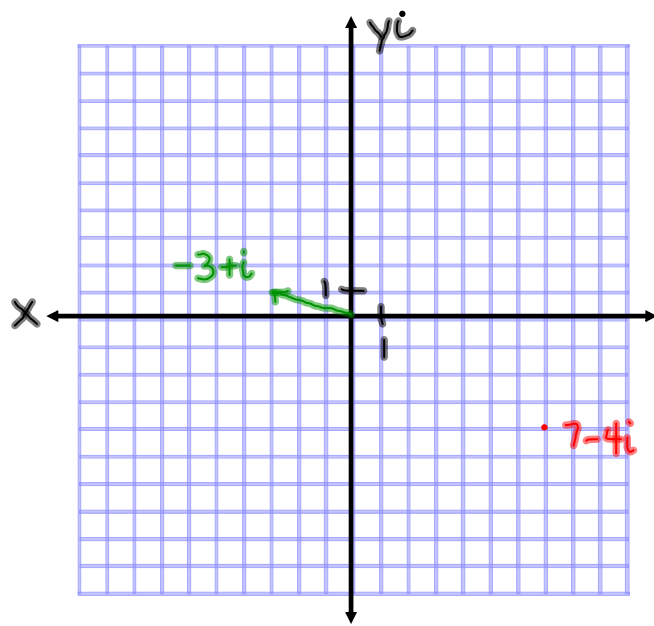
Graphing Complex Numbers

The complex number plane has the x -axis, which is made up of real numbers, and the yi -axis, which is made up of imaginary numbers.



graph $4+2i$

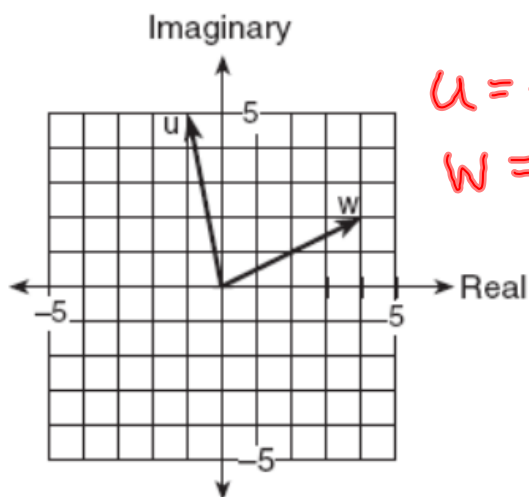
graph $-3+5i$



graph $7-4i$

graph $-3+i$

12 Two complex numbers are graphed below.



$u = -1 + 5i$
 $w = 4 + 2i$

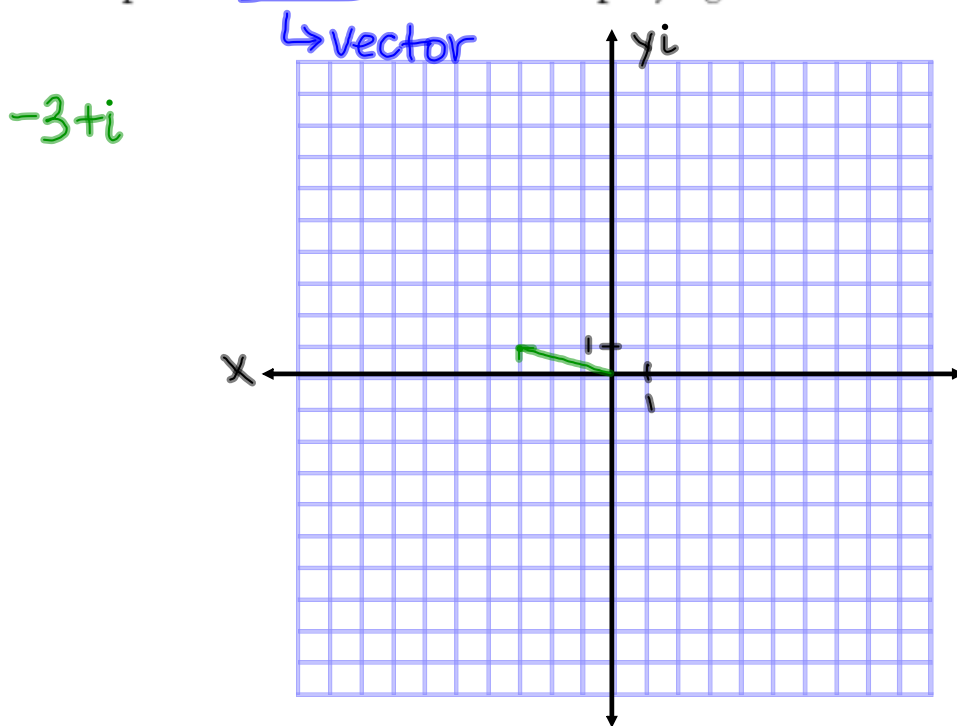
What is the sum of w and u , expressed in standard complex number form?

- (1) $7 + 3i$
 (2) $3 + 7i$

- (3) $5 + 7i$
 (4) $-5 + 3i$

21 Find the sum of $-2 + 3i$ and $-1 - 2i$.

Graph the resultant on the accompanying set of axes.



Adding and Subtracting Complex Numbers

Combine like terms.

$$(5 + \sqrt{-24}) + (-2 - \sqrt{-54})$$

$$(5 + 2i\sqrt{6}) + (-2 - 3i\sqrt{6})$$

$$\boxed{3 - i\sqrt{6}}$$

$$\left(\frac{3}{4} - \frac{5}{2}i\right) - \left(\frac{1}{8} + 6i\right)$$

$$\left(\frac{6}{8} - \frac{5}{2}i\right) - \left(\frac{1}{8} + \frac{12}{2}i\right)$$

$$\frac{5}{8} - \frac{17}{2}i \quad \text{or} \quad \frac{5}{8} - \frac{17i}{2} \quad \text{or} \quad \frac{5 - 68i}{8}$$