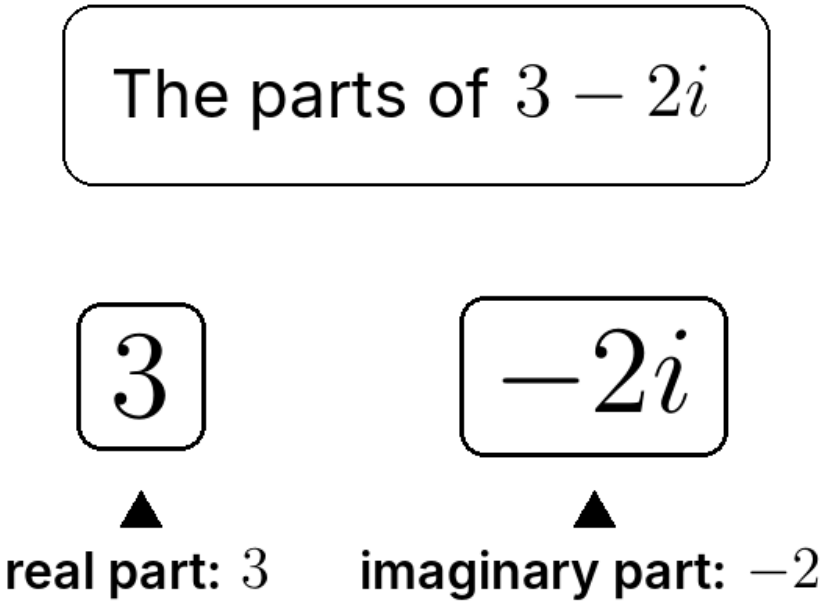
Complex Numbers

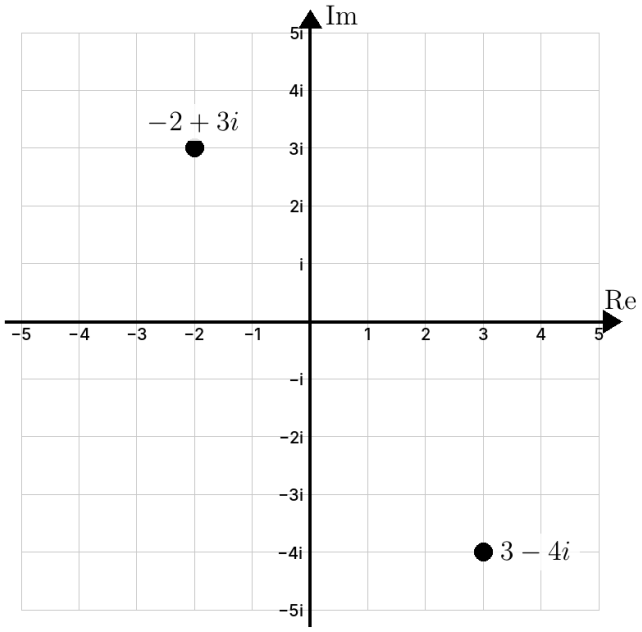
CN04-V1 · storyboard · CN04 Complex numbers: plot, add and subtract. Read each picture with its sentences.

Picture 1



1. Look at the parts of 3 minus 2 i.
2. The real part is 3, and the imaginary part is negative 2: the number in front of i, with its sign, but without the i.

Picture 2



The real part goes across.

The imaginary part goes up or down.

3. On the complex plane, the real part goes across, along the real axis, and the imaginary part goes up or down.
4. 3 minus 4 i is 3 right and 4 down.
5. Negative 2 plus 3 i is 2 left and 3 up.

Picture 3

Simplify $(-8+4i)-(4-5i)$.

$$-8+4i-4+5i$$ the minus changes both parts

$$=(-8-4)+(4+5)i$$ real with real, imaginary with imaginary

$$=\boxed{-12+9i}$$

6. Simplify negative 8 plus 4 i, minus, 4 minus 5 i.
7. The minus sign changes both parts of the bracket: minus 4, and plus 5 i.
8. Real with real, and imaginary with imaginary.
9. That gives negative 12 plus 9 i.

Picture 4

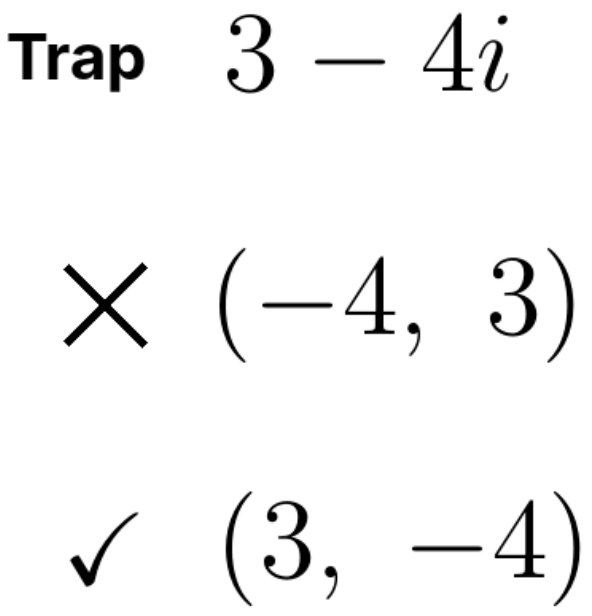
Trap $(2i + 1) + (3 - 7i)$

$\times\ 5 - 6i$

$\checkmark\ \ 4 - 5i$

10. Watch for the trap: 2 i plus 1, plus 3 minus 7 i, is not 5 minus 6 i.
11. Real with real: 1 plus 3 is 4.
12. Imaginary with imaginary: 2 i minus 7 i is negative 5 i.
13. Writing the real part first helps.

Picture 5



14. Another trap: 3 minus 4 i is not the point negative 4, 3.
15. The real part first, across: it is the point 3, negative 4.