Use your *left* arm to represent the complex plane, with your left shoulder representing the origin. For each complex number or operation given to you by your instructor, move your arm so that it points to the appropriate complex number.
The prompts are deliberately not given here, as they are best given one-by-one during class. A summary of the prompts appears in the solution.

Solution

Prompts

- 1, i, $-i$

- $-3i$

- $e^{i\pi/6}$

- Multiply the previous complex number by $e^{i\pi/2}$

- Multiply the same complex number instead by i

- Find the complex conjugate of your result

Answers

- Your arm should point forward, up, and down, respectively.

- Your arm should still point down, but be three times longer!

- Using Euler's formula, $e^{i\pi/6} = \cos\frac{\pi}{6} + i\sin(\frac{\pi}{6})$, representing in polar form the complex number in the first quadrant with reference angle $\frac{\pi}{6}$.

- Again using Euler's formula, $e^{i\alpha}e^{i\beta} = e^{i(\alpha+\beta)}$, so multiplication by $e^{i\pi/2}$ corresponds to a rotation by $90°$.

- Since $e^{i\pi/2} = \cos\frac{\pi}{2} + i\sin\frac{\pi}{2} = i$, this question is the same as the previous one.

- Complex conjugation reverses the sign of the vertical component, thus implementing a reflection across the x-axis.