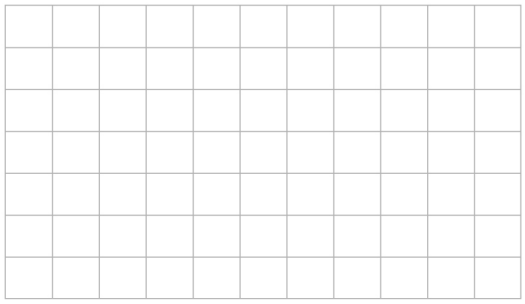
Trigonometric Form of a Complex Number

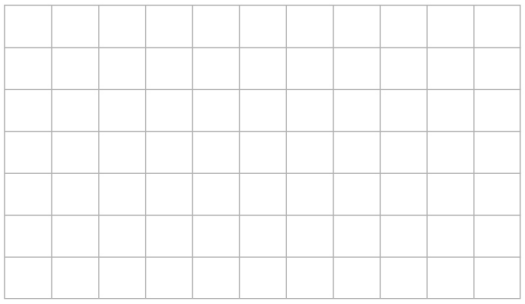
MATH MONKS

Find the trigonometric form of each number and represent them graphically.

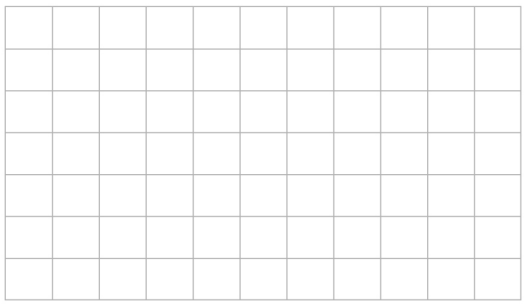
① $-2 - 2\sqrt{3}\,i$



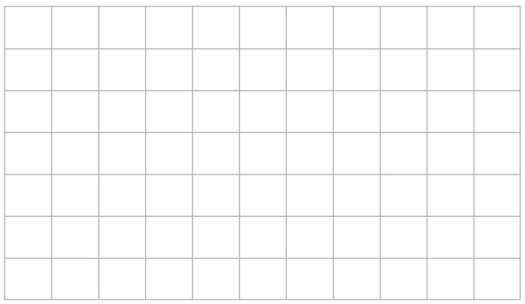
② $-3 + 3i$



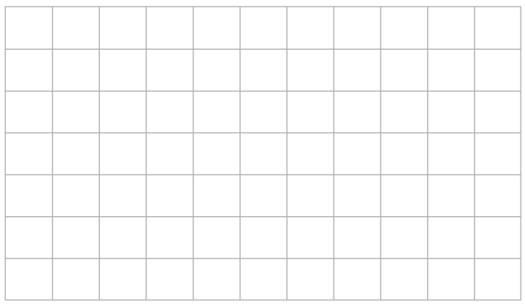
③ $-4i$



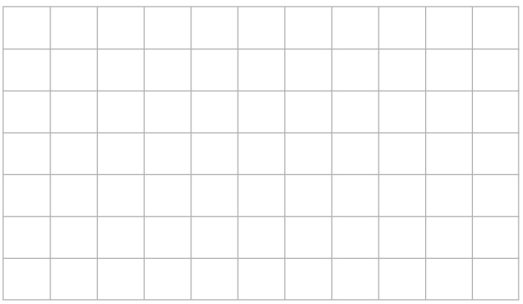
④ 4



⑤ $\frac{3\sqrt{3}}{2} + \frac{3}{2}i$



⑥ $3 - 3i$

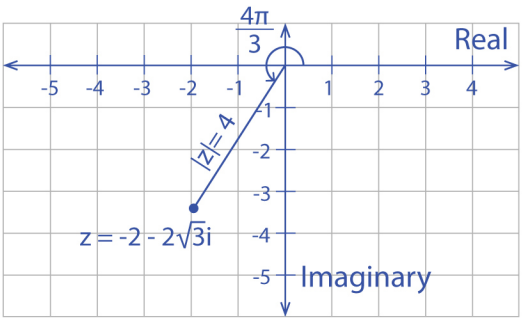


Trigonometric Form of a Complex Number

MATH MONKS

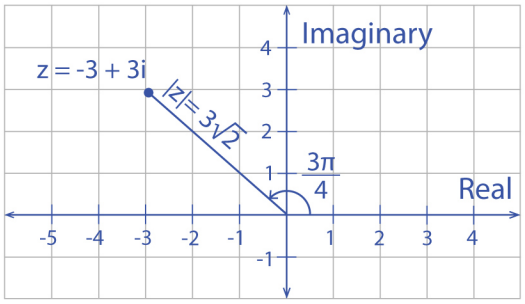
Answers

① $-2 - 2\sqrt{3}\,i$



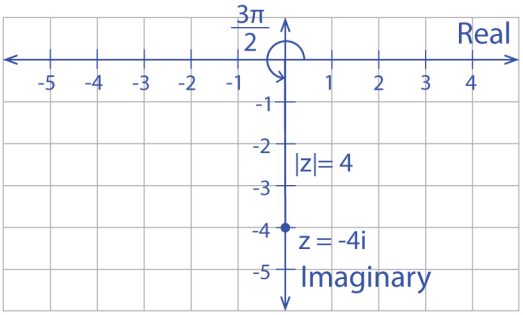
$$4\left(\cos\frac{4\pi}{3} + i\sin\frac{4\pi}{3}\right)$$

② $-3 + 3i$



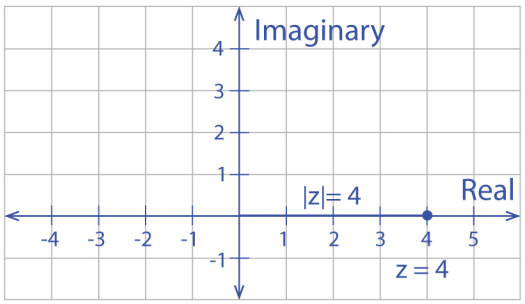
$$3\sqrt{2}\left(\cos\frac{3\pi}{4} + i\sin\frac{3\pi}{4}\right)$$

③ $-4i$



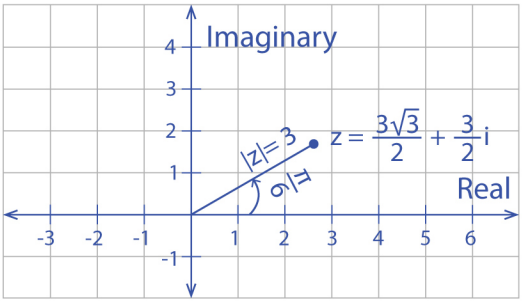
$$4\left(\cos\frac{3\pi}{2} + i\sin\frac{3\pi}{2}\right)$$

④ 4



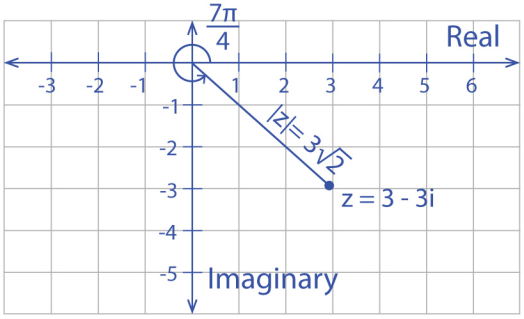
$$4\left(\cos 0 + i\sin 0\right)$$

⑤ $\frac{3\sqrt{3}}{2} + \frac{3}{2}i$



$$3\left(\cos\frac{\pi}{6} + i\sin\frac{\pi}{6}\right)$$

⑥ $3 - 3i$



$$z = 3\sqrt{2}\left(\cos\frac{7\pi}{4} + i\sin\frac{7\pi}{4}\right)$$