

(1 point)

Re-write the following expressions with i:

$$\sqrt{-64} = 8i$$

(1 point)

Re-write the following expressions with i:

$$\sqrt{-15} = \sqrt{15}i$$

(1 point) Evaluate the following expressions and write them in the form $a + bi$.

$$i^2 = -1$$

$$i^3 = -i$$

$$i^4 = 1$$

$$i^5 = i$$

$$i^{38} = -1$$

$$i^{41} = i$$

$$i^{-1} = -i$$

$$i^{-2} = -1$$

$$i^{-3} = i$$

$$i^{-11} = i$$

$$i^0 = 1$$

$$\frac{i^{41}}{i^{11}} = -1$$

(1 point) What is the square root of i ? (That is, what is \sqrt{i} ?)

- ☐ A. $-i$
☐ B. -1
☒ C. $\frac{1}{\sqrt{2}}(1 + i)$
☐ D. $(1 - i)$
☐ E. Does not exist

Entered	Answer Preview	Result
$2.12132+2.12132i, -2.12132+2.12132i, -2.12132-2.12132i, 2.12132-2.12132i$	$(-81)^{\frac{1}{4}}, (-81)^{\frac{1}{4}}e^{\frac{\pi i}{2}}, (-81)^{\frac{1}{4}}e^{\pi i}, (-81)^{\frac{1}{4}}e^{\frac{3\pi i}{2}}$	correct
$1, 0.309017+0.951057i, -0.809017+0.587785i, -0.809017-0.587785i, 0.309017-0.951057i$	$1, e^{\frac{2\pi i}{5}}, e^{\frac{4\pi i}{5}}, e^{\frac{6\pi i}{5}}, e^{\frac{8\pi i}{5}}$	correct
$0.92388+0.382683i, -0.382683+0.92388i, -0.92388-0.382683i, 0.382683-0.92388i$	$i^{\frac{1}{4}}, i^{\frac{1}{4}}e^{\frac{\pi i}{2}}, i^{\frac{1}{4}}e^{\pi i}, i^{\frac{1}{4}}e^{\frac{3\pi i}{2}}$	correct

All of the answers above are correct.

(1 point) Find all the values of the following.

(1) $(-81)^{\frac{1}{4}}$

Place all answers in the following blank, separated by commas:

$$(-81)^{\frac{1}{4}}, (-81)^{\frac{1}{4}}e^{i\pi/2}, (-81)^{\frac{1}{4}}e^{i\pi}, (-81)^{\frac{1}{4}}e^{3i\pi/2}$$

(2) $1^{\frac{1}{5}}$

Place all answers in the following blank, separated by commas:

$$1, e^{2\pi i/5}, e^{4\pi i/5}, e^{6\pi i/5}, e^{8\pi i/5}$$

(3) $i^{\frac{1}{4}}$

Place all answers in the following blank, separated by commas:

$$i^{\frac{1}{4}}, i^{\frac{1}{4}}e^{i\pi/2}, i^{\frac{1}{4}}e^{i\pi}, i^{\frac{1}{4}}e^{3i\pi/2}$$