WeBWorK Assignment Homework13 is due : 05/21/2016 at 04:13pm EDT.

References: Axler, Precalculus, 2nd ed, Section 6.5
Supplement on Euler's Formula

Here's the list of **functions and symbols** that WeBWorK understands.

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1. (1 pt) Write the following numbers in the polar form $r(\cos\phi + i\sin\phi)$, $0 \leq \phi < 2\pi$.

(a) 5

$r =$ _____, $\phi =$ _____,

(b) $3i$

$r =$ _____, $\phi =$ _____,

(c) $-4 + 8i$

$r =$ _____, $\phi =$ _____.

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2. (1 pt) Use de Moivre's Formula to evaluate the power below.

$(1+i)^9 =$ _____

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3. (1 pt) Write the following numbers in the polar form $re^{i\theta}$, $0 \leq \theta < 2\pi$:

(a) $\dfrac{1}{6}$

$r =$ _____, $\theta =$ _____,

(b) $5 + 5i$

$r =$ _____, $\theta =$ _____,

(c) $8 - 8i$

$r =$ _____, $\theta =$ _____.

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4. (1 pt) Write each of the given numbers in the form $a + bi$:

(a) $e^{-\frac{i\pi}{2}}$

_____ + _____i,

(b) $\dfrac{e^{(1+i4\pi)}}{e^{(-1+\frac{i\pi}{2})}}$

_____ + _____i,

(c) $e^{e^{i}}$

_____ + _____i.

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5. (1 pt) Find all the values of the following.

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

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

_____

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

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

_____

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

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

_____

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6. (1 pt) The function

$$f(t) = 5\cos(5t) + 2\sin(5t)$$

can be expressed in the form

$$f(t) = A\cos(\omega t + \theta)$$

where A, ω and θ are constants. Find A, ω and θ.

$A =$ _____

$\omega =$ _____

$\theta =$ _____