Name:________________________________ Date:______________ Block:__________________

Section 7-7: *Imaginary and Complex Numbers*

Warm-up:

Solve for x. Check for extraneous solutions:

1) $\sqrt{x} = 16$ 2) $\sqrt[3]{x} - 2 = 4$ 3) $\sqrt{x-3} = -8$ 4) $6 + \sqrt{8-x} = x$

Imaginary Numbers:

In the set of real numbers, negative numbers do not have square roots…

For example:

However, ____________________ were invented so negative numbers could have square roots. What was created was an "imaginary unit" called __________.

Powers of "i":

$i \quad =$	$i^9 =$
$i^2 =$	$i^{10} =$
$i^3 =$	$i^{11} =$
$i^5 =$	$i^{12} =$
$i^6 =$	$\vdots$
$i^7 =$	$i^{56} =$
$i^8 =$	$i^{67} =$

- What patterns do you see occurring?
- How can we use this pattern to determine the value of $i^{very\ large\ power}$?

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<u>Section 7-7:</u> *Imaginary and Complex Numbers*

EXAMPLES:

1.) 2.) 3.) 4)

<u>Definition:</u>

Imaginary numbers are numbers expressed as _______________, where

<u>Multiplying Imaginary Numbers:</u>

CAUTION!!! – Before you multiply you must first:____________________________________.

1.) 2.) 3.) 4)

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__Section 7-7:__ Imaginary and Complex Numbers

<u>Complex Numbers:</u>

Write in a+bi form:

1.) 2.) 3.) 4)

Add or subtract the following:

1.) 2.) 3.) 4)

[if there is time] Multiply the following:

RECALL:

1.) 2.) 3.) 4)