

Honors Algebra 2  
4.4 Complex Numbers Day 2

Name: Key

Solve Each Equation:

<p>1. <math>3x^2 + 48 = 0</math>  <math>3x^2 = -48</math>  <math>x^2 = -16</math>  <math>x = \pm \sqrt{-16}</math>  <math>x = \pm 4i</math></p>	<p>2. <math>2x^2 + 10 = 0</math>  <math>2x^2 = -10</math>  <math>x^2 = -5</math>  <math>x = \pm \sqrt{-5}</math>  <math>x = \pm i\sqrt{5}</math></p>	<p>3. <math>8x^2 = -128</math>  <math>x^2 = -16</math>  <math>x = \pm \sqrt{-16}</math>  <math>x = \pm 4i</math></p>
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Find the values of  $x$  and  $y$  that make each equation true:

<p>4. <math>\frac{9 + 12i}{3x + 4yi}</math> <small>imaginary part</small>  <small>real part</small>  <math>9 = 3x</math>    <math>12 = 4y</math>  <math>3 = x</math>    <math>3 = y</math></p>	<p>5. <math>2x + 7 + (3 - y)i = -4 + 6i</math>  <math>2x + 7 = -4</math>    <math>3 - y = 6</math>  <math>2x = -11</math>    <math>y = -3</math>  <math>x = -11/2</math></p>
<p>6. <math>a + 3b + (3a - b)i = 6 + 6i</math>  <math>a + 3b = 6</math>    <math>3a - b = 6</math>  <small>*system</small>  <math>a + 3b = 6</math>    <math>\frac{12}{5} + 3b = 6</math>  <math>(3a - b = 6) \cdot 3</math>    <math>3b = 6 - \frac{12}{5}</math>  <math>a + 3b = 6</math>    <math>3b = 18/5</math>  <math>9a - 3b = 18</math>    <math>b = 6/5</math></p>	<p>7. <math>5 + 4i - (x + yi) = -1 - 3i</math>  <math>5 + 4i - x - yi = -1 - 3i</math>  <math>5 - x + (4 - y)i = -1 - 3i</math>  <math>5 - x = -1</math>    <math>4 - y = -3</math>  <math>x = 6</math>    <math>y = 7</math></p>

$10a = 24$   
 $a = 12/5$