

Use complex numbers in polynomial identities and equations. Build on work with quadratic equations in Secondary Mathematics II (Standards N.CN.8–9)	
<b>Standard N.CN.8:</b> Extend polynomial identities to the complex numbers. <i>Forexample, rewrite <math>x^2 + 4as(x + 2i)(x - 2i)</math>.</i>	
Concepts and Skills to Master	
<ul style="list-style-type: none"> <li>Use polynomial identities to rewrite polynomial expressions that involve complex numbers.</li> </ul>	
Related Standards: Current Course	Related Standards: Future Courses
<a href="#">III.N.CN.9</a> , <a href="#">III.A.APR.2</a> , <a href="#">III.A.APR.3</a> , <a href="#">III.A.APR.4</a> , <a href="#">III.A.APR.6</a> , <a href="#">III.A.SSE.2</a> , <a href="#">III.F.IF.7</a> , <a href="#">III.F.IF.8</a> , <a href="#">III.F.IF.9</a>	<a href="#">P.N.CN.3</a>

Support for Teachers

Critical Background Knowledge
<ul style="list-style-type: none"> <li>The meaning and form of complex numbers (<a href="#">II.N.CN.1</a>)</li> <li>Adding, subtracting, and multiplying complex numbers (<a href="#">II.N.CN.2</a>)</li> <li>Solving quadratic equations and understand the nature of the roots (<a href="#">II.N.CN.7</a>, <a href="#">II.N.CN.8</a>)</li> </ul>
Academic Vocabulary
<i>i</i> , complex number, imaginary, root, zero, factor, coefficient, conjugate pair
Resources:
<a href="https://www.uen.org/core/core.do?courseNum=5630#71584">Curriculum Resources</a> : <a href="https://www.uen.org/core/core.do?courseNum=5630#71584">https://www.uen.org/core/core.do?courseNum=5630#71584</a>

Use complex numbers in polynomial identities and equations. Build on work with quadratic equations in Secondary Mathematics II (Standards N.CN.8–9)	
<b>Standard N.CN.9:</b> Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials. Limit to polynomials with real coefficients.	
Concepts and Skills to Master	
<ul style="list-style-type: none"> <li>• Know that the Fundamental Theorem of Algebra guarantees that polynomial functions will have solutions in the complex number system.</li> <li>• Show that polynomials with degree <math>n</math> have exactly <math>n</math> roots over the complex number system.</li> </ul>	
Related Standards: Current Course	Related Standards: Future Courses
<a href="#">III.N.CN.8</a> , <a href="#">III.A.APR.1</a> , <a href="#">III.A.APR.2</a> , <a href="#">III.A.APR.3</a> , <a href="#">III.A.APR.4</a> , <a href="#">III.A.APR.6</a> , <a href="#">III.A.CED.1</a> , <a href="#">III.A.SSE.2</a> , <a href="#">III.F.IF.8</a> , <a href="#">III.F.IF.9</a>	<a href="#">P.N.CN.3</a>

Support for Teachers

Critical Background Knowledge
<ul style="list-style-type: none"> <li>• Meaning and form of complex numbers (<a href="#">II.N.CN.1</a>)</li> <li>• Adding, subtracting, and multiplying complex numbers (<a href="#">II.N.CN.2</a>)</li> <li>• Know the Fundamental Theorem of Algebra (focus is on quadratics) (<a href="#">II.N.CN.9</a>)</li> </ul>
Academic Vocabulary
$i$ , complex numbers, imaginary, root, zero, factor, coefficient, conjugate
Resources:
<a href="https://www.uen.org/core/core.do?courseNum=5630#71585">Curriculum Resources</a> : <a href="https://www.uen.org/core/core.do?courseNum=5630#71585">https://www.uen.org/core/core.do?courseNum=5630#71585</a>