

Any standard **highlighted in yellow** has been determined by our WCSD teachers, district and state experts as essential for students to master.

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| <p>Strand 11.N.CN: I can use complex numbers in polynomial identities and equations. I can build on work with quadratic equations in Secondary mathematics II (Standards N.CN.8-9)</p> | | | |
| <p>Standard 11.N.CN.8: I can extend polynomial identities to the complex numbers.</p> | | | |
| <p>Learning Targets</p> <ul style="list-style-type: none"> I can use polynomial identities to rewrite polynomial expressions using complex numbers. I can factor polynomial expressions over the set of complex numbers. | <p>Academic Vocabulary & Notation</p> <ul style="list-style-type: none"> complex number, imaginary, i, root, zero, factor, coefficient, conjugate pair | <p>Question Stems</p> <ul style="list-style-type: none"> Assume that $1 + i$ is a zero of the polynomial f with real coefficients. Justify that $x^2 - 2x + 5$ is a factor. Determine linear factors of $x^3 - 8$ over the complex number system. | <p>Possible Assessments</p> <ul style="list-style-type: none"> <u>District CFAs</u> |
| <p>Standard 11.N.CN.9: I know and can use the Fundamental Theorem of Algebra. I can show that it is true for quadratic polynomials and limit the polynomials with real coefficients.</p> | | | |
| <p>Learning Targets</p> <ul style="list-style-type: none"> I can show that polynomials with degree n have at most n roots over the real number system. I can show that polynomials with degree n have exactly n roots over the complex number system. | <p>Academic Vocabulary & Notation</p> <ul style="list-style-type: none"> degree, i, complex numbers, imaginary, root, zero, factor, coefficient, conjugate | <p>Question Stems</p> <ul style="list-style-type: none"> Sketch a polynomial function of degree 5 with the following characteristics: one real root, three real roots, and five real roots. Why can the polynomial function of degree 5 not have exactly two distinct roots? | <p>Possible Assessments</p> <ul style="list-style-type: none"> <u>District CFAs</u> |