

Mini-Map for M.EE.HS.N.CN.2.b

Subject: Mathematics

Number and Quantity—The Complex Number System (N.CN)

Grade: 9

Learning Outcome

DLM Essential Element	Grade-Level Standard
M.EE.HS.N.CN.2.b Solve real-world problems involving addition and subtraction of decimals, using models when needed.	M.N.CN.2.b Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.

Linkage Level Descriptions

Initial Precursor	Distal Precursor	Proximal Precursor	Target	Successor
Communicate understanding of "separateness" by recognizing objects that are not joined together. Communicate understanding of set by recognizing a group of objects sharing an attribute.	Recognize a unit as a group of countable objects. Recognize ten as a group of 10 individual objects or 10 ones. Communicate understanding that the digit in the tens place is formed by grouping objects by 10s and the digit in the ones place is composed of individual objects.	Add and subtract two rational numbers, each with a digit in the tenths places (e.g., subtracting 4.5 from 8.2).	Solve real-world problems involving addition and subtraction of rational numbers with digits to the hundredths place (e.g., John has \$2.50. Sara gives him \$1.50 more. How much money does John have now?).	Solve multi-step real-world and mathematical problems involving rational numbers with digits to the hundredths place.

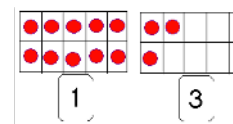
Initial Precursor and Distal Precursor Linkage Level Relationships to the Target

How is the Initial Precursor related to the Target?

Adding and subtracting rational numbers requires a student to be able to recognize that two or more sets or groups of items exist. Work on this skill using a variety of sets. Help students recognize when items are grouped together into a set or separated out. The educator presents a set, labels it (e.g., two balls, one marker, three CDs), counts the items, labels it again, and encourages students to use numerals to label and count the separate sets.

How is the Distal Precursor related to the Target?

As students' understanding of numbers develops, they will work with numbers greater than nine (two-digit numbers). Use tools to create tactual and visual models of tens and ones (e.g., ten-frames, connecting cubes, bundling sticks). Educators will describe these numbers as __ groups of ten and __ ones. (e.g., 13 is 1 group of ten and 3 ones).



Instructional Resources

Released Testlets
See the Guide to Practice Activities and Released Testlets .
Using Untested (UN) Nodes
See the document Using Mini-Maps to Plan Instruction .

[Link to Text-Only Map](#)

M.EE.HS.N.CN.2.b Solve real-world problems involving addition and subtraction of decimals, using models when needed.

