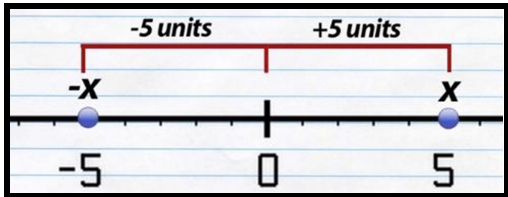
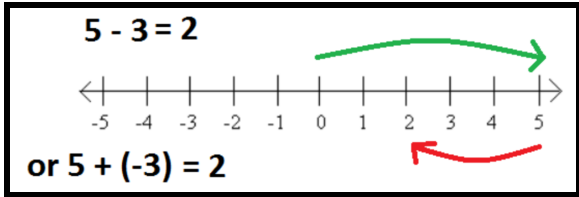


Standards for Mathematical Practice

[MP.1.](#) Make sense of problems and persevere in solving them.
[MP.2.](#) Reason abstractly and quantitatively.
[MP.3.](#) Construct viable arguments and critique the reasoning of others.
[MP.4.](#) Model with mathematics.

[MP.5.](#) Use appropriate tools strategically.
[MP.6.](#) Attend to precision.
[MP.7.](#) Look for and make use of structure.
[MP.8.](#) Look for and express regularity in repeated reasoning.

Standard	Clarifications
KY.7.NS.1 Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. a. Describe situations in which opposite quantities combine to make 0. b. Understand $p + q$ as the number located a distance q from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts. c. Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference and apply this principle in real-world contexts. d. Apply properties of operations as strategies to add and subtract rational numbers. <i>Alternate Assessment Target: Limit full standard to integers from negative 20 to 20.</i> <i>Note: assessment items will focus on demonstrating conceptual understanding rather than use of precise vocabulary (additive inverse).</i>	a. For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged. b. The sum of numbers is a directional movement from one number to another for a specified amount of spaces on the number line. The sum of opposites is 0 due to the fact that opposites have equivalent absolute values. c. Subtracting a positive number is the same as adding the positive number's opposite. <i>Alternate Assessment Clarification:</i>  

Connections to Math Practices	Coherence/Foundational Understandings
MP.2 Reason abstractly and quantitatively. (Add or remove context to solve problems*) Use of a number line to provide a visual model or physical representation (e.g. a number line on the floor for students to physically step through the problem) MP.7 Look for and make use of structure. (Simplify problems by using their structure*) Doing multiple examples to help students discern the patterns in adding and subtracting positive and negative numbers (rational numbers). MP.6 Attend to precision. (Communicate precisely.)* Key Vocabulary: Absolute value, difference, negative Click here to see more about what teachers and students do to build the math practices: Engaging the Math Practices and Question Stems	Pre-requisite Skills • Understand absolute value • Use of number lines involving positive and negative numbers KY.6.NS.5 KY.6.NS.6 Coherence KY.6.NS.7 → KY.7.NS.1 Kentucky Academic Standards for Mathematics

*Clarification to the [math practices by Robert Kaplinsky](#).

Instructional Considerations
Possible Areas of Difficulties/Misconceptions • Students may be confused when subtracting a negative number that the answer may be greater, instead of less than, the number they started with (e.g. $5 - (-3) = 8$). Suggested Tools/Visual Aids - • KY Alternate Assessment Resource Guide (General terms pps 6-11 ; Math terms pps 22-26) • Ky Alternate Standards Progression • Number line (possibly including one on the floor for physical representations) • Counters (e.g. bi-colored counters) or integer pieces