

Math 5.4B Clarifying Document

TEKS

Grade: Fifth Grade

Strand:5.4 Algebraic Reasoning.

Essential Question(s):

- *What is your first step in solving this problem? What is the next step?*
- *Would a different method help in solving this problem?*
- *How would you state this problem in your own words? Does it sound like similar problems you have solved?*
- *What is the best way to represent and solve real-world problems?*

Grade 4

4.5(A) represent multi-step problems involving the four operations with whole numbers using strip diagrams and equations with a letter standing for the unknown quantity.

Grade 5

5.4(B) represent and solve multi-step problems involving the four operations with whole numbers using equations with a letter standing for the unknown quantity.

Grade 7

7.3(A) add, subtract, multiply, and divide rational numbers fluently (S).

Cognitive Rigor: What should students be doing?

- *Represent*
- *Solve*

Vocabulary Choice Board

Represent
Solve
Whole number
Equation
Unknown quantity
Variable

Content: What will the students represent and solve?

- *Four operations with whole numbers*

Context: In what context will the students represent and solve the four operations with whole numbers?

- *Using equations*
- *Letter standing for the unknown*
- *Multi-step problems*

Content Builder

Instruction should involve a mixture of operations and should include multi-step problem situations. Problems should include a letter standing for the unknown quantity in any part of the equation (start unknown, change unknown, or result unknown). This standard includes students solving AND representing problem situations with the appropriate equation. Remind students that the meaning of the equal sign is that the value should be equal on both sides.

Encourage students to write more than one equation for the same problem situation. For example, Jamie buys 82 tokens at an arcade. She gave her sister 12 tokens and her brother 16 tokens. How many tokens does Jamie have for herself? Correct equations for solving the problem include $82 - 12 - 16 = t$ or $82 = 12 + 16 + t$. Representing and solving multi-step problems lays a strong foundation for future algebraic reasoning.

Having students label the numbers with what they represent can help facilitate comprehension of what is happening in the word problems. Ex: 84 (Tokens Jamie buys) - 12 (Tokens given to her sister) - 16 (Tokens given to her brother) = T (Number of tokens Jamie has left). Students need to connect this to reading comprehension and that the number sentence "tells the story."

Students just learned how to simplify numerical expressions using parentheses and brackets up to two levels of grouping (5.4F). They will be applying this new knowledge as they represent equations with this standard.

Instructional Implications

Teachers should avoid:

- Only providing students with one equation per problem. Modeling a problem with multiple equations strengthens students' algebraic reasoning and helps them develop flexible thinking for problem solving.
- Using "keywords" to determine the operation. Teachers should focus on the context of the problem to help students visualize when modeling solutions.
- Assuming students understand how and when to use parentheses and brackets when writing equations and solving.

Instructional Videos & Anchor Charts

Instructional Videos:

- [Represent and Solve Video](#)

Anchor Charts

- [STEMscopes Anchor Chart](#)

Assessment & Path to Proficiency

EOL Example

Mr. Hays is adding a fence around his herb garden.

- The perimeter of the garden is 80 feet.
- Each section of the fence is 8 feet long.
- Each section cost \$6.

Write an equation and solve for c , the total cost of the fence he will need.

[5.4B CFA](#)

EOL Example

Mila earned \$87 last week pet sitting.

- She spent \$15 on makeup.
- She spent \$26 on a new jacket.
- She spent the rest on a new pair of shoes.

Select all equations that can be used to find s , the amount of money in dollars that Mila spent on shoes?

- ☐ $s = 87 - 15 - 26$
- ☐ $87 = 15 + 26 - s$
- ☐ $15 + 26 - 87 = s$
- ☐ $87 - 15 + 26 = s$
- ☐ $87 = 15 + 26 + s$

5.4B Path to Proficiency

Path to Proficiency Checklists can be used to help teachers determine specific learning targets for students who have not mastered all components of an essential standard. These checklists can be used for targeted intervention tracking for MTSS and utilized to track student growth throughout the school year. These checklists highlight student behaviors for content mastery of the TEKS.

Tools/Representations/Supports

Tools:

Base Ten Blocks

Representations:

Equation
Strip Diagrams

Other Supports:

Three Reads Checklist
Problem Solving Graphic Organizer
Strip Diagram