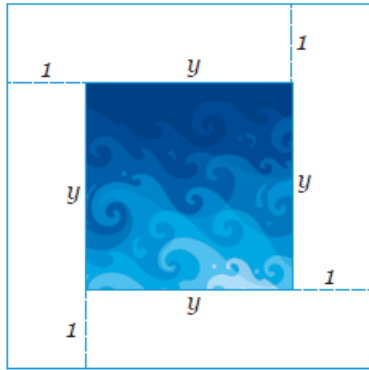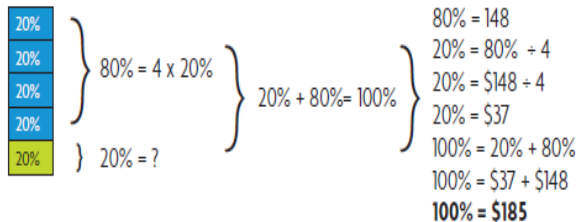## Example of a problem involving mathematical expressions

In expressing the number of one foot square tiles needed to border a square pool with a length of y (where y represents a whole number), students might write 4y + 1 + 1+ 1 + 1, 4y + 4, or 4(y + 1). All are different ways to express the same value.

Example of a problem involving proportions..

Problem: After a 20% discount, the price of a skateboard is $148. What was the price before the discount?

Solution: After a 20% discount, the price is 80% of the original price. So 80% of the original price is $148. Students use this information to find the value of 20% and 100% of the original price.

80% = 4 x 20%

20% + 80%= 100%

20% = ?

80% = 148
20% = 80% ÷ 4
20% = $148 ÷ 4
20% = $37
100% = 20% + 80%
100% = $37 + $148
100% = $185

Students will also learn to write and solve the equation representing this situation as 0.8x = 148

Grade 7 Mathematics

- Analyze proportional relationships and use them to solve real-world problems

- Calculate the unit rates associated with ratios of fractions, such as the ratio of ½ a mile for every ¼ of an hour

- Recognize and represent proportional relationships in various ways, including using tables, graphs, and equations

- Identify the unit rate in tables, graphs, equations, and verbal descriptions

Helping your child learn outside of school

1. Ask your child to calculate the unit rates of items purchased from the grocery store. For example, if 2 pounds of flour cost $3.00, how much does flour cost per pound?

2. Use store advertisements to engage your child in working with numbers. For example, if a store advertises 30% off, have your child estimate the dollar amount of the discount, as well as the sale price of an item.

3. Have students use four 4's and any of the four arithmetic operations to write the numbers from 0 to 20 (for example, 44-44=0; 4•4- 4•4 = 0. How do you get 1? 4/4+4-4 =1).

4. Encourage your child to stick with it whenever a problem seems

5. difficult. This will help your child see that everyone can learn math.

6. 5. Praise your child when he or she makes an effort, and share in the excitement when he or she solves a problem or understands something for the first time.

Parent ROADMAP

to
California Common Core Standards

7th Grade

START HERE

The way we taught students in the past simply does not prepare them for the higher demands of college and careers today and in the future. Your school and schools throughout the country are working to improve teaching and learning to ensure that all children will graduate high school with the skills they need to be successful.

ENGLISH LANGUAGE ARTS

In grade seven, students will continue to develop the ability to cite relevant evidence when interpreting or analyzing a text or supporting their points in speaking and writing. Your child will also build academic vocabulary as he or she reads more complex texts, including stories, plays, historical novels, poems, and informational books and articles.

Activities in these areas will include:

- Analyzing how the form or structure of a play or poem contributes to its meaning

- Analyzing how particular elements of a story or play interact (like how the setting shapes the characters or plot)

- Determining how an author develops and contrasts the points of view of different characters or narrators in a text

- Conducting short research projects, drawing on several sources and identifying related questions for further research and investigation

- Engaging in a range of classroom discussions on topics and texts, expressing ideas clearly and building on the ideas of others

- Identifying a speaker's argument and specific claims and evaluating the reasoning and evidence behind these claims

- Using clues such as word roots or add-ons to a word (such as the prefix *hyper–*, which means 'excessive' in the words *hyperactive* and *hypersensitive*) to determine the meaning of a word

- Interpreting figures of speech or references to literature or mythology in a text

- Writing for a range of purposes and audiences

READING LITERATURE

Grade 7 Reading
- Students determine a theme or central idea of a text and analyze its development over the course of the text. Students also provide an objective summary of the text.

- Students analyze how an author develops and contrasts the points of view of different characters or narrators in a text.

READING FOR INFORMATION

Grade 7 Reading

- Students cite several pieces of evidence from the text to support analysis of what the text says explicitly as well as inferences drawn from the text.

- Students compare and contrast a text to an audio, video, or multimedia version of the text, analyzing each medium's portrayal of the subject (such as how the delivery of a speech affects the impact of the

Grade 7 Writing
- Students introduce a topic clearly, previewing what is to follow, and develop the topic with relevant facts, definitions, concrete details, quotations, or other information.

- Students provide a concluding statement or section that follows from and supports the information or explanation presented.

- Students organize ideas, concepts, and information using strategies such as definition, classification, comparison/contrast, and cause/ effect.

- Students use appropriate transitions to create cohesion and clarify the relationships among ideas and concepts.

- Students use precise language and subject-specific vocabulary to inform or explain the topic.

Helping your child learn outside of school

1. Provide time and space for your child to read independently. This time should be free from distractions such as television.

2. Ask your child what topics, events, or activities he or she likes. Then look for books, magazines, or other materials about those topics that would motivate your child to read.

3. It is also helpful when your child sees other people reading at home. You could share what you have read.

4. Make time for conversation at home. Discuss current events, shared interests, and future aspirations for education and career.

5. Visit museums, zoos, theaters, historical sites, aquariums, and other educational places to help increase your child's exposure to new knowledge and vocabulary.

6. Use technology to help build your child's interest in reading. There are several websites where students can read books or articles online. The computer will help with words the student cannot read independently. Libraries also have computers students can use to access those sites. Feel free to ask a librarian or teacher for suggestions.

MATHEMATICS

In grade seven, students will further develop their understanding of rates and ratios, using tables, graphs, and equations to solve real-world problems involving proportional relationships. Students will also work on quickly and accurately solving multi-step problems involving positive and negative rational numbers—any number that can be made by dividing one integer by another, such as ½, 0.75, or 2. Additionally, students will expand their knowledge of geometry and apply the properties of operations to solve real world problems involving the measurement of multi-dimensional objects.

Activities in these areas will include:

- Determining whether two quantities are in a proportional relationship and using knowledge of rates, ratios, proportions, and percentages to solve multi-step problems

- Identifying the unit rate of change (the constant rate at which the value of a variable changes) in tables, graphs, equations, and verbal descriptions

- Calculating the unit rates associated with ratios of fractions, including quantities measured in different units (for example, the ratio of ½ a mile for every ¼ of an hour means that you travel 2 miles in an hour)

- Solving problems using equations to find the value of one missing variable

- Applying the properties of operations to generate equivalent mathematical expressions

- Solving multi-step word problems by adding, subtracting, multiplying, and dividing positive and negative rational numbers in any form (including whole numbers, fractions, or decimals)

- Understanding that numbers cannot be divided by 0

- Converting rational numbers to decimals using long division

- Describing situations in which positive and negative quantities combine to make 0

- Finding the area of two-dimensional objects and the volume and surface area of three-dimensional objects

Grade 7 Mathematics

- Re-write an expression in different forms to show different solutions to a problem or how quantities are related

- Use variables to represent quantities and construct simple equations and inequalities (for example, $5x+2>10$) to solve problems

- Solve multi-step word problems involving positive and negative numbers

- Understand that solving an inequality or an equation such as $\frac{1}{4}(x+5)=21$ means answering the questions, *"what number does x have to be to make this statement true?"*