

What is different about this CST math study guide?

Dr. Clark applies her knowledge of math and test anxiety reduction to help students prepare for the CST.

Students project what their score might be by analyzing what they know. Math content is grouped by concepts in order to make the mathematics review easily manageable.

This further reduces the anxiety of students who struggle with math.

This book is ideal for students who experience high math anxiety as well as test anxiety. It is great for students who study independently as well as in a classroom tutoring environment.

Schools can use this book for short term intensive review courses, after school tutoring, or ongoing in class review.

The self-assessment that allows students to project how they might perform on the CST math test is a wonderfully helpful tool that parents can easily follow.

As a result, parents can better support their children to develop an effective and focused study plan.

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Grade 6 Mathematics - Number Sense

NUMBER SENSE (NS)

25 problems on the CST

Students will compare and order positive and negative fractions, decimals, and mixed numbers, solve problems involving fractions, ratios, proportions, and percentages, and solve problems involving addition, subtraction, multiplication, and division.

6 Items

NS 1.3 - Use proportions to solve problems. Use cross-multiplication and demonstrate conceptual understanding of the multiplicative inverse.

NS 2.3 - Solve addition, subtraction, multiplication, and division problems, arising in concrete situations, that use positive and negative integers and combinations of these operations.

5 items

NS 1.4 - Calculate percentages, solve problems involving sales discounts, interest, and tips.

4 Items

Non NS standards have 4 items.

3 items

NS1.1 - On a number line, compare and order positive and negative fractions, decimals, and mixed numbers.

NS 2.4 - Determine the least common multiple and the greatest common divisor of whole numbers; to solve problems with fractions.

2 items

No NS standards have 2 items.

1 item

NS 1.2 - Interpret and use ratios in different contexts (e.g., batting averages, miles per hour) to show the relative sizes of two quantities (a/b , a to b , $a:b$).

1 item per 2 years

NS 2.1 - explain why a particular operation was used for a given situation.

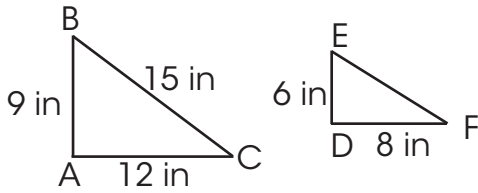
NS 2.2 - Demonstrate division with positive decimals and long division with multidigit divisors.

Grade 6 Mathematics - Number Sense**Important Vocabulary**

Standard NS 1.1	Integers, convert, opposite
Standard NS 1.2	Ratio, rate, per, compare
Standard NS 1.3	Proportion, multiplicative identity, Inverse, multiplicative inverse
Standard NS 1.4	Percent, interest, inverse, discount
Standard NS 2.3	Positive integers, negative integers, operations
Standard NS 2.4	Least common multiple, greatest common factor

Grade 6 Mathematics - Number Sense

Multiple Choice



1. $\triangle ABC$ is similar to $\triangle DEF$. What is the length of EF ?

- a. 4 in
- b. 10 in**
- c. 14 in
- d. 15 in

NS1.3 (6 Items)

4. Mc Jack's Hamburgers sells 6 Jack Deal Meals for every 128 customers. If they sold 200 Jack Deal Meals, how many customers did they have? Choose the proportion that would help you figure out the answer.

- a. $\frac{6}{x} = \frac{128}{200}$
- b. $\frac{6}{128} = \frac{x}{200}$
- c. $\frac{6x}{200} = \frac{128}{200}$
- d. $\frac{6}{128} = \frac{200}{x}$**

NS1.3 (6 Items)

2. In a sixth grade class, there are three boys for every two girls. If there are 30 boys, how many girls are there?

- a. 6
- b. 20**
- c. 22
- d. 33

NS1.3 (6 Items)

5. At lunch time, 300 cartons of chocolate milk and 50 cartons of white milk gets consumed. What is the ratio of chocolate milk to white milk that gets consumed during lunch?

- a. 3:5
- b. 6:1**
- c. 350:1
- d. 50:300

NS1.3 (6 Items)

3. Jeff and Brenda each launched rockets that were side by side when Brenda's rocket was 100 feet in the air. Jeff's rocket launched from a 50 foot canyon and Brenda launched from the ground. What, if any, was the difference in the height reached by each rocket?

- a. 0 feet
- b. 50 feet**
- c. 100 feet
- d. 150 feet

NS2.3 (6 Items)

6. On Monday, it was 650 outside. On Tuesday, it was 100 cooler than Monday. Wednesday was 150 warmer than Tuesday. What was the difference in temperature between Monday and Wednesday?

- a. 50**
- b. 50
- c. 500
- d. 600

NS2.3 (6 Items)

Grade 6 Mathematics - Number Sense

Common Misconceptions

Misconception #1 - cross-multiplication is a magic trick

A common misconception is that cross multiplication is a magic trick where you memorize rules to figure out which fraction is bigger. In the example below, you learn that $\frac{4}{5}$ is a bigger fraction than $\frac{2}{3}$ because, after cross multiplying, 12 is bigger than 10.

$$\begin{array}{r} 10 \\ \hline \end{array} \quad \begin{array}{r} 2 \\ \hline 3 \end{array} \times \begin{array}{r} 4 \\ \hline 5 \end{array} \quad \begin{array}{r} 12 \\ \hline \end{array}$$

In fact, the above example is a short cut method of likening two fractions. We just didn't finish the problem. If it were not a short cut, students would complete the problem by making the cross multiplied numbers new numerators and then multiply the two denominators to make a new denominator. It looks like this:

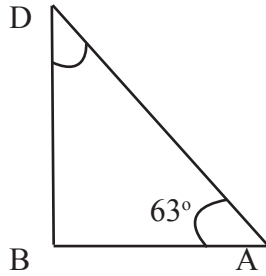
$$\begin{array}{r} 10 \\ \hline 15 \end{array} \quad \begin{array}{r} 2 \\ \hline 3 \end{array} \times \begin{array}{r} 4 \\ \hline 5 \end{array} \quad \begin{array}{r} 12 \\ \hline 15 \end{array}$$

When you complete the problem this way, you can see that $\frac{12}{15}$ is a bigger fraction than $\frac{10}{15}$. We likened the denominator which means that the biggest numerator is the biggest fraction. That is why the bigger cross multiplied number is the biggest fraction. It is understood that the denominator is the same, so we do not need to actually write it down, and we are simply comparing the numerators.

Practice Test A

67. What is the measure of angle D in this triangle?

- A. 33°
- B. 37°
- C. 27°
- D. 30°



71. During Chidera's birthday bowling party, three friends scored 124, 56, and 56. If a fourth person is added with a score of 245, which of these will be true?

- A. The mean will decrease
- B. The mean will increase
- C. The median will change
- D. The median will increase

68. 55° is a supplement of which of these angles?

- A. 35°
- B. 135°
- C. 125°
- D. 25°

72. The ages of six players in a school's basketball team are 17, 14, 16, 15, 16, and 17. What is the mean age of the players?

- A. 23
- B. 16
- C. 15
- D. 17

69. Team A player's playoff points are listed below.
602 367 246 27 216 103 128 81 70 69 142
Which of these is true about the median and mode of their points?

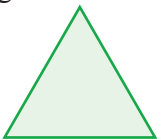
- A. The median is 103 and no two players scored the same points during the playoff
- B. The median is 128 and no two players scored the same points in the playoff
- C. The median is 128 and the mode is 602
- D. The median is 128 and the mode is 27

73. Ann is interested to know which fast food restaurant that most students in her school visit often. Which of the following methods will give her the most accurate result?

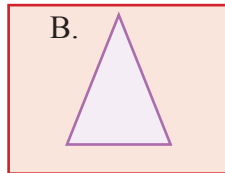
- A. Survey all the students in his last period class
- B. Sample all students in his athletic team
- C. Survey 100 students during a football game at his school
- D. Survey 100 students during lunch time

70. Which of the following figures is isosceles triangle?

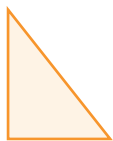
A.



B.



C.



D.



74. Mark's scores in three quarters of his class periodic assessments were 73, 81, and 76. If he scores 100 on the last assessment, which of the following will be true?

- A. The mean will increase
- B. The median will decrease
- C. The range will not change
- D. The mode will increase