

Number Sense Strand - 1

WHAT DO THE NUMBER SENSE STANDARDS ASK ME TO DO?

The CAHSEE Number Sense strand includes basic arithmetic calculations with whole numbers, fractions, and decimals, all done without using a calculator.

The CAHSEE Number Sense questions will ask you to:

- C Solve problems with fractions, decimals, percentages, and integers compare and order numbers –
 - ! Video/DVD #1-4 – *Fractions - Fraction basics, addition, subtraction, multiplication and division.*
 - ! Video/DVD #5 – *Word Problems – Finding averages. Solving addition, subtraction, multiplication and division word problems.*
 - ! Video/DVD #6 – *Decimals – Explains the basics plus addition, subtraction, multiplication and division of decimals.*
 - ! Video/DVD #7 – *Percent – Basics of percent and how to solve percent problems.*
- C Understand percents, including percents less than 1 % and greater than 100% –
 - ! Video/DVD #7 – *Described above.*
- C Use ratios and proportions to solve problems –
 - ! Video/DVD #8 – *Ratio and Proportion – Explains the basics plus how to solve ratio and proportion problems.*
- C Understand the meaning of numbers written in scientific notation –
 - ! None
- C Find and use multiples, factors, and primes –
 - ! Minimally addressed in Video/DVD #1 and Video/DVD #2 –
 - Video/DVD #1 – *Fractions 1: Basics – Includes a description and explanation of fractions plus reducing and changing to higher terms.*
 - Video/DVD #2 – *Fractions 2: More Basics, Addition, Subtraction – Explains*

changing mixed numbers to improper fractions and changing improper fractions to whole or mixed numbers. Also explains the basics of addition and subtraction of fractions.

- C Add, subtract, multiply, and divide numbers, and use the relationships among these operations including inverse, commutative, associative, and distributive properties –
- ! Video/DVD #A – Addition – Explains addition of single digits through several digits plus how to solve addition word problems.
 - ! Video/DVD #B – Subtraction – Subtraction of single digits through several digits plus how to solve subtraction word problems.
 - ! Video/DVD #C – The Multiplication Tables – Explains the multiplication tables from 0 thru 12 and gives several techniques for learning them.
 - ! Video/DVD #D – Multiplication – How to multiply double digits by one number through the multiplication of several digits plus how to solve multiplication word problems.
 - ! Video/DVD #E – *Division* – How to divide single through multiple digits plus how to solve division word problems.
 - ! Estimate square roots of whole numbers to the nearest whole number –
 - ! Video/DVD #12 – *Geometry 2* – *Explains complementary and supplementary angles, similar triangles and the Pythagorean Theorem.*

Number Sense Strand - 2

WHAT DO THE STATISTICS, DATA ANALYSIS, AND PROBABILITY STANDARDS ASK ME TO DO?

The CAHSEE questions from Statistics, Data Analysis, and Probability strand will ask you to:

- Understand data displays including bar graphs and scatter plots –
 - ! Minimally addressed in Video/DVD #15 – *Algebra 3* – *Explains more difficult equations, graphing, slope, and algebra word problems.*
- Find the mean, median, and mode of a data set –
 - ! *Mean only.*

- ! Video/DVD #5 – *Word Problems – Finding averages. Solving addition, subtraction, multiplication and division word problems.*
- Express the probability of an event as a ratio, a decimal, or a percent –
 - ! Video/DVD #6 – *Decimals – Explains the basics plus addition, subtraction, multiplication and division of decimals.*
 - ! Video/DVD #7 – *Percent – Basics of percent and how to solve percent problems.*
 - ! Video/DVD #8 – *Ratio and Proportion – Explains the basics plus how to solve ratio and proportion problems.*
- Know whether events are independent or dependent –
 - ! None

Number Sense Strand - 3

WHAT DO THE MEASUREMENT AND GEOMETRY STANDARDS ASK ME TO DO?

The CAHSEE Measurement and Geometry questions will ask you to:

- Convert measurements and rates from one measuring system to another –
 - ! None
- Use information from scale drawings –
 - ! None
- Know the effect of scaling on length, perimeter, area, and volume –
 - ! Video/DVD #9 – *Measurement: Area, Perimeter – Explains how to find the area and perimeter of a square, rectangle and triangle.*
 - ! Video/DVD #10 – *Measurement: Circles, Volume – Explains how to find the area and circumference of a circle plus how to find the volume.*
- Translate and reflect a shape drawn on a coordinate system –
 - ! Video/DVD #15 – *Algebra 3 – Explains more difficult equations, graphing, slope, and algebra word problems.*

- Know the Pythagorean theorem and its converse, and how and when to use each –
! Video/DVD #12 – *Geometry 2 – Explains complementary and supplementary angles, similar triangles and the Pythagorean Theorem.*
- Know that congruent objects have the same shape and size –
! Video/DVD #12 – *Described above.*
- Use lengths of an object to calculate the object's area, surface area, or volume –
! Video/DVD #10 – *Measurement: Circles, Volume – How to find the area and circumference of a circle plus how to find the volume of a cube, rectangular container and a cylinder.*.Correlation of Learn Quickly Math Video/DVD

Specifically, you need to know how to calculate each of the following items:

- Perimeter of a polygon (add up the lengths of the sides) –
! Video/DVD #9 – *Described above.*
- Circumference of a circle ($C = Bd$ where d is the diameter) –
! Video/DVD #10 – *Described above.*
- Area of a parallelogram ($A = bh$ where b is base and h is height; the formula –
! Video/DVD #9 – *Described above.*
- $A = bh$ also applies for finding the area of a rectangle because rectangles are just special kinds of parallelograms –
! Video/DVD #9 – *Described above.*
- Area of a triangle ($A = \frac{1}{2}bh$) –
! Video/DVD #9 – *Described above.*
- Volume of a rectangular solid ($V = lwh$ where l is length, w is width, and h is height) –
! Video/DVD #9 – *Described above.*

Note: The formulas above are not provided on the exam, but all other formulas will be provided for you.

Number Sense Strand - 4

WHAT DO THE ALGEBRA AND FUNCTIONS STANDARDS ASK ME TO DO?

To answer the CAHSEE Algebra and Functions questions, you'll need to know how to:

- Generalize numerical and geometric patterns –
 - ! Video/DVD #9 – *Measurement: Area, Perimeter* – Explains how to find the area and perimeter of a square, rectangle and triangle.
 - ! Video/DVD #10 – *Measurement: Circles, Volume* – How to find the area and circumference of a circle plus how to find the volume of a cube, rectangular container and a cylinder.
- Use a table, graph, or symbolic rule to represent the generalization of a pattern –
 - ! Video/DVD #9 & Video/DVD #10 – *Described above.*
- Compare different forms of representations –
 - ! Video/DVD #8 – *Ratio and Proportion* – Explains the basics plus how to solve ratio and proportion problems.
 - ! Video/DVD #10 – *Described above.*
- Know the difference between a relation and a function –
 - ! None
- Solve linear equations –
 - ! Video/DVD #13 – *Algebra 1* – Explains combining like terms, substitution problems, order of operation, and signed numbers.
 - ! Video/DVD #14 – *Algebra 2* – How to solve equations.
 - ! Video/DVD #15 – *Algebra 3* – Explains more difficult equations, graphing, slope, and algebra word problems.

Number Sense Strand - 5

WHAT DO THE MATHEMATICAL REASONING STANDARDS ASK ME TO DO?

"Mathematical Reasoning" includes the logical thinking skills that you develop while learning mathematics and can carryover into other disciplines.

The mathematical reasoning strand includes:

- Recognizing and generalizing patterns –
 - ! Video/DVD #5 – *Word Problems – Finding averages. Solving addition, subtraction, multiplication and division word problems.*
- Identifying and organizing relevant information –
 - ! Video/DVD #5 – *Described above.*
- Validating conjectures both inductively and deductively –
 - ! Video/DVD #5 – *Described above.*

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WHAT DO THE ALGEBRA I STANDARDS ASK ME TO DO?

To answer the CAHSEE Algebra I questions, you'll need to know how to:

- Recognize equivalent forms of polynomials and other algebraic expressions –
 - ! Video/DVD #16 – *Algebra 4 – Explains polynomial operations.*
- Understand the meaning of opposite, reciprocal, root, and absolute value –
 - ! Video/DVD #12 – *Geometry 2 – Explains complementary and supplementary angles, similar triangles and the Pythagorean Theorem.*
 - ! Video/DVD #14 – *Algebra 2 – How to solve equations.*
- Identify the graph that matches a particular linear function and find its slope and intercepts –
 - ! Video/DVD #15 – *Algebra 3 – Explains more difficult equations, graphing, slope, and algebra word problems.*

- Know that lines on a graph are parallel if and only if they have the same slope –
! Video/DVD #15 – *Described above.*
- Solve linear inequalities –
! None
- Solve problems involving rate, average speed, distance, and time –
! Video/DVD #15 – *Described above.*
- Identify the solution to a system of two equations in two unknowns –
! Video/DVD #15 – *Described above.*
- Solve classic algebra rate, work, and percent mixture problems –
! Video/DVD #15 – *Described above.*