

Manson School District

MATH

Seventh Grade Essentials

Number Sense

- Compare, order, and explain the relative value of rational numbers.
- Demonstrate understanding of the concepts of ratios, percents, and direct proportions.
- Apply computational procedures with fluency for addition, subtraction, multiplication and division on non-negative rational numbers.

Measurement

- Understand the difference between linear, square, and cubic units and analyze how a change in a linear dimension affects other linear measurements (perimeter, circumference) and area measurements.

Geometric Sense

- Understand the characteristics of polygons, circles, rectangular prisms and similarity
- Understand and apply combinations of translations (slides) and reflections (flips) to two-dimensional figures
- Understand how to locate points on the coordinate grid in all 4 quadrants

Probability and Statistics

- Understand and apply procedures for determining the probabilities of multiple trials
- Determine and use central tendencies, tables, and graphs to describe and interpret data.

Algebraic Sense

- Apply understanding of linear relationships to analyze patterns, sequences, and situations.
- Understand and solve two-step equations and inequalities.

Process

- Apply strategies, concepts and procedures to devise a plan, solve problems, reason logically, and communicate with clarity using charts, diagrams, or pictures.

Strategies Emphasized:

Write a ratio

Look for a pattern

Solve a simpler problem

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Eighth Grade Essentials

Number Sense

- Understand the concept of rational numbers including whole number powers and square roots of square numbers
- Apply the concepts of ratio, percent, and direct proportion.
- Estimate and compute with rational numbers including integers, whole number powers, and square roots of perfect squares.

Measurement

- Understand and apply derived units of measurement and formulas to solve problems with 2 dimensional figures

Geometric Sense

- Demonstrate understanding of the concept of similarity and the characteristics of 1, 2, and 3 dimensional geometric figures.

Probability and Statistics

- Understand how to collect, present, read, interpret, and analyze data to inform, persuade, or answer questions.
- Understand how to find probabilities for complementary, mutually exclusive, and compound events.

Algebraic Sense

- Apply understanding of linear and non-linear relationships to analyze patterns, sequences, and situations.
- Understand relationships between quantities including whole number exponents, square roots, and absolute value
- Understand and apply a variety of strategies to solve multi-step equations and one-step inequalities with one variable.

Math Processes

- Apply strategies, concepts and procedures to devise a plan, solve problems, reason logically, and communicate with clarity using charts, diagrams, or pictures.

Strategies Emphasized:

- Use logical reasoning
- Work backwards
- Estimate and check

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9/10th Grade Essentials

Number Sense

- Estimate, understand, apply and check operations with rational numbers, scientific notation and powers
- Understand and use direct variation and inverse proportions to solve problems

Measurement

- Use formulas find perimeter, area and volume. Analyze the effects of changes in dimension
- Convert within and between systems of measurement

Geometric Sense

- Apply understanding of geometric properties to construct, classify and compare 1,2, and 3 dimensional figures
- Apply understanding of multiple transformations to figures on the coordinate grid

Probability and Statistics

- Determine probabilities of compound, dependent, and independent events
- Analyze data from multiple sources to infer, predict, persuade and check for bias and accuracy

Algebraic Sense

- Develop equations for linear models and find distances on a coordinate graph
- Analyze patterns, relationships and functions
- Write and solve equations/inequalities and systems of equations/inequalities.

Process

- Apply strategies, concepts and procedures to devise a plan, solve problems, reason logically, and communicate with clarity using charts, diagrams, or pictures.

Strategies Emphasized:

9th Grade:

Draw a picture
Solve a simpler problem
Work backwards
Write an equation
Make a table or an organized list
Identify missing information

10th Grade:

Use objects
Use logical reasoning
Estimate and check
Look for a pattern
Write a ratio

