SEVENTH GRADE MATHEMATICS LEARNING GOALS

Mastery Level

1. Add/subtract/multiply/divide whole numbers, fractions, decimals without use of calculator.
2. Understand fractions and percents and relationship among fractions, decimals, percents.
3. Solve problems involving percents
4. Simplify expressions and solve equations following the order of operations.
5. Understand and apply the Pythagorean theorem, both looking for the hypotenuse and for a leg, in problem solving.
6. Find area and perimeter/circumference of circles, triangles, parallelograms, trapezoids, and complex figures combining these figures or parts of these figures.
7. Understand the concept of raising a number to a power and finding a root of a number, and use a calculator to do both of those operations.
8. Understand what a spreadsheet is and how to construct one on a computer
9. Convert different units of measurement, both within and between the metric and customary systems.
10. Use different units of measure to measure length, area and volume
11. Understand the rationale behind the use of scientific notation, rewrite numbers in scientific notation, and compute with numbers written in scientific notation.
12. Estimate, round, and decide whether an answer "makes sense" for a problem.
13. Apply previous knowledge to problem-solving.
14. Solve multi-step equations involving signed numbers and variables on both sides of the equation.
15. Use a protractor to measure angles, draw angles, and construct figures with the additional use of a ruler.
16. Use proportions to problem-solve.
17. Use dimensional analysis to problem-solve.
18. Understand ratios and use ratios and scales to solve certain types of problems.
19. Understand the relationship between mass, density, and volume, and solve problems involving the density of materials.
20. Understand what similar figures are, and use ratios and proportions to solve problems involving them.
21. Interpret and construct circle graphs, bar graphs, line graphs, scattergrams, pictographs, histograms, stem-and-leaf plots, and box-and-whisker plots.
22. Know the difference between measure of central tendency: median, mean, and mode.
23. Understand what matrices are, and add/subtract/multiply with them.
24. Understand what integers are, and add/subtract/multiply/divide with signed numbers without use of a calculator.
25. Understand what inequalities are, and graph them on a number line.
26. Understand the concept of absolute value and solve equations involving absolute value.
27. Graph points and lines on Cartesian coordinate systems.