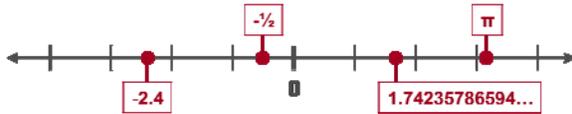## 01: Introduction to Test Prep Math

### Key Terms

- **Algebra:** a branch of mathematics in which symbols, usually letters of the alphabet, are used to represent numbers and quantities.
- **Algebraic expression:** a quantity that combines variables, numbers, and operation symbols.
- **Area:** the amount of space inside a two-dimensional shape.
- **Equation:** a mathematical statement in which two or more expressions are set equal to each other.
- **Inequality:** a mathematical statement comparing two or more expressions using $<$, $>$, $\leq$, and $\geq$.
- **Like terms:** two or more terms that have the same variable raised to the same power.
- **Linear equation:** an equation that represents a line.
- **Polynomial:** an expression made up of terms containing variables with whole number exponents.
- **Probability:** a number from 0 to 1 that tells how likely an event is to happen.
- **Real number:** any number that can be represented with a point on the real number line.



- **Solution of an Equation:** the value that makes an equation true when the variable is replaced by the value.
- **Term:** a variable, number, or the product of a number and a variable.
- **VANG:** an acronym used to remember the four ways an algebraic relationship can be expressed: verbal, analytical, numerical, graphical.
- **Variable:** a symbol that is used to represent a quantity.
- **Volume:** the amount of space enclosed in a solid object.

### Evaluating Algebraic Expressions

**To evaluate an algebraic expression, substitute a given number for each variable and find the value of the resulting numerical expression.**

Example: Evaluate the expression for the given values.
$$2m - 3n + 7 \quad \text{for} \quad m = 8 \text{ and } n = 5$$
Solution:
$$\begin{aligned} 2m - 3n + 7 &= 2(8) - 3(5) + 7 \\ &= 16 - 15 + 7 \\ &= 8 \end{aligned}$$

### Simplifying Algebraic Expressions

**To simplify an algebraic expression, perform all possible operations and combine like terms.**
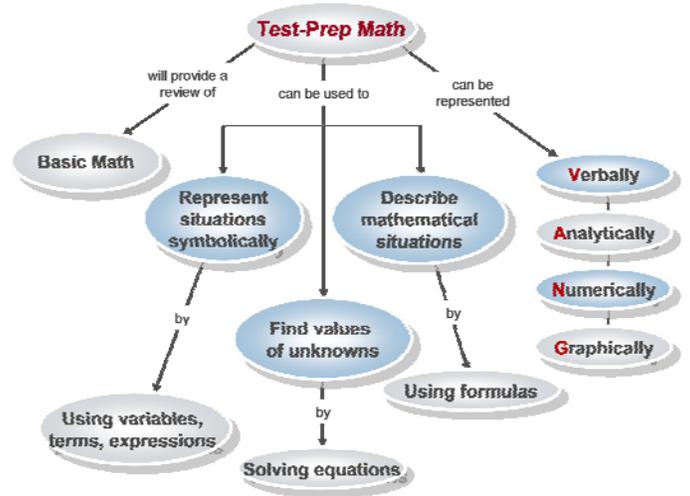
Example: Simplify the expression.
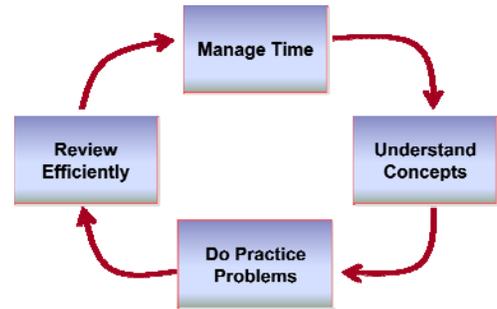$$5(x - 2y) + 4x$$
Solution:
$$\begin{aligned} 5(x - 2y) + 4x &= 5x - 10y + 4x \\ &= 5x + 4x - 10y \\ &= (5 + 4)x - 10y \\ &= 9x - 10y \end{aligned}$$

### Concept Map



### Test Preparation

**Follow this four-step process to successfully prepare for the math section of a test:**



### Study Tips

- Connect new topics to things you already know.
- If you have touble understanding the material, ask questions.
- Get a study partner or group to help and motivate each other.
- Practice solving problems, including the multi-step problems.
- Focus core study hours on your weak areas.
- Plan ahead and set a study schedule.
- Create a cheat sheet and flash cards to use as study aides.

### Tips and Reminders

- Connect new topics to things you already know.
- If you have touble understanding the material, ask questions.
- Get a study partner or group to help and motivate each other.
- Practice solving problems, including the multi-step problems.
- Focus core study hours on your weak areas.
- Plan ahead and set a study schedule.
- Create a cheat sheet and flash cards to use as study aides.
- Remember to bring photo ID and a watch to the test.

How to Use This Cheat Sheet: These are the keys related this topic. Try to read through it carefully twice then recite it out on a blank sheet of paper. Review it again before the exams.