

Algebra Basics

Aligns
with
Learning
Standards

Introduce key algebra concepts with examples and definitions,
and then challenge students with a new problem each day.

ALGEBRA basics

Problem of the Day
Solve for x
if $3x + 5 = 5x - 7$

VOCABULARY
Equation: $3x + 12 = 6^2$
Variable: x , Exponent: 2
Coefficient: 3 , Base: 6
Expression: $3x + 12$, Terms: $3x$, 12 , Power: 6^2

HOW TO SOLVE AN EQUATION
Perform the SAME idea to BOTH sides of the equation.

- Eliminate the variable on one side by adding or subtracting.
 $4 + 5x = 3x + 10$
 $-3x$
 $4 + 2x = 10$
- Eliminate the constant on one side by adding or subtracting.
 $4 + 2x = 10$
 -4
 $2x = 6$
- Get a single variable by multiplying or dividing.
 $2x = 6$
 $2x \div 2 = 6 \div 2$
 $x = 3$
- To check, substitute your solution for the variable.
 $4 + (5 \times 3) = (3 \times 3) + 10$
 $19 = 19$

GRAPHING
Coordinate Plane: A graph where horizontal and vertical number lines intersect at their zero points.
Ordered Pair: (x, y)
Quadrant: $(-4, -3)$
X-axis: X-coordinate
Y-axis: Y-coordinate

PROPERTIES

- Commutative Property of Addition & Multiplication: $3 + 4 = 4 + 3$, $a + b = b + a$, $5 \times 8 = 8 \times 5$, $ab = ba$
- Associative Property of Addition & Multiplication: $(3 + 7) + 9 = 3 + (7 + 9)$, $2 \times (5 \times 6) = (2 \times 5) \times 6$, $a \times (b \times c) = (a \times b) \times c$
- Inverse Property of Multiplication: $\frac{2}{3} \times \frac{3}{2} = 1$, $\frac{0}{5} \times \frac{5}{0} = 1$, $a \times \frac{1}{a} = 1$ (where a and $b \neq 0$)
- Distributive Property of Addition & Subtraction: $4(7+2) = 14+8 = 22$, $3(8-2) = 24-6 = 18$

FORMULAS
Formulas are equations that show the relationship of at least 2 variables.

- Area of a Circle: $A = \pi r^2$ (π (3.14) times the radius squared)
- Area of a Rectangle: $A = l \times w$ length times width
- Area of a Triangle: $A = \frac{1}{2}bh$ $\frac{1}{2}$ the base times height
- Circumference of a Circle: $C = 2\pi r$ 2 times (π (3.14) times the radius)
- Miles per Gallon: $MPG = \frac{\text{distance}}{\text{gallons used}}$ distance divided by gallons used
- Perimeter of a Rectangle: $P = 2l + 2w$ 2 times the length plus 2 times the width
- Distance: $D = rt$ rate times time
- Interest: $I = prt$ principal times rate times time
- Volume: $V = lwh$ length times width times height

ORDER OF OPERATIONS
To solve math problems with more than one operation, remember this phrase for the correct order:
Please Excuse My Dear Aunt Sally
Please Parentheses
Excuse Exponents
My Dear Multiply and/or Divide (left to right)
Aunt Sally Add and/or Subtract (left to right)

Featured Display

Display the bulletin board set as you teach each concept. At the top of the Wipe-Off® chart, write "Problem of the Day." After the class has studied an algebra skill, write a corresponding problem on the chart. Ask students to work the problem to check for comprehension. For example: "Solve for x if $3x + 5 = 5x - 7$ ", or "Use the correct order of operations to evaluate $125 - (8 + 9) + 11^2 \times 13$ ". Discuss answers at the end of the day, and review the featured concept.

You'll need

- T-8256 **Algebra Basics Bulletin Board Set**
- T-9877 **Red Terrific Trimmers®**
- T-1095 **Notebook Paper Wipe-Off® Chart**
- T-98003 **Standard Colors Wipe-Off® Markers**

Keep the theme going

- T-8183 **Algebra Readiness Bulletin Board Set**
- T-85019 **Math Signs Bolder Borders®**
- T-38175 **Math Symbols Learning Chart**
- T-38177 **Order of Operations Learning Chart**
- T-38950 **Intermediate Math Learning Charts Combo Pack**
- T-1092 **Graphing Grid Wipe-Off® Chart**
- T-47086 **Math Fun Applause STICKERS®**
- T-81025 **Math Star Recognition Awards**
- T-23006 **Multiplication Pocket Flash Cards**
- T-23018 **Division Pocket Flash Cards**

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