

Prealgebra 1

Pre-Algebra Sheet 1

Order of Operations
 PARENTHESIS
 EXPONENTS
 MULTIPLICATION
 DIVISION
 ADDITION
 SUBTRACTION

Area and Volume
 Area: $A = \frac{1}{2}bh$
 Volume: $V = \frac{1}{3}Ah$
 Surface Area: $SA = 2\pi rh + 2\pi r^2$
 Volume: $V = \frac{4}{3}\pi r^3$

Properties
 Commutative (addition) $a + b = b + a$
 Associative (addition) $(a + b) + c = a + (b + c)$
 Multiplicative (multiplication) $a(b \cdot c) = (a \cdot b) \cdot c$
 Distributive $a(b + c) = ab + ac$
 Additive Inverse $a + (-a) = 0$
 Multiplicative Inverse $a \cdot \frac{1}{a} = 1$
 Zero Property $a \cdot 0 = 0$
 Identity Property $a + 0 = a$
 Reflexive Property $a = a$
 Symmetric Property $a = b \Rightarrow b = a$
 Transitive Property $a = b, b = c \Rightarrow a = c$
 Substitution Property $a = b \Rightarrow a \text{ can be replaced by } b$

Graphing
 Slope: $m = \frac{y_2 - y_1}{x_2 - x_1}$
 Y-intercept: b
 X-intercept: a
 Equation of a line: $y = mx + b$
 Point-slope form: $y - y_1 = m(x - x_1)$
 Slope-intercept form: $y = mx + b$
 Standard form: $ax + by = c$
 Distance formula: $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
 Midpoint formula: $M = (\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2})$

Algebra I 1

Algebra I Sheet 1

Adding & Subtracting positive and negative numbers
 SAME SIGN ADD
 DIFFERENT SIGN SUBTRACT

Multiplying & Dividing positive and negative numbers
 SAME SIGN POSITIVE +
 DIFFERENT SIGN NEGATIVE -

Properties
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Geometry 1

Geometry Sheet 1

Area and Volume
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Algebra II 1

Algebra II Sheet 1

Real Numbers
 Natural Numbers: $1, 2, 3, \dots$
 Whole Numbers: $0, 1, 2, 3, \dots$
 Integers: $\dots, -2, -1, 0, 1, 2, \dots$
 Rational Numbers: $\frac{a}{b}$
 Irrational Numbers: $\pi, \sqrt{2}, \dots$

Properties of Exponents
 $a^m \cdot a^n = a^{m+n}$
 $\frac{a^m}{a^n} = a^{m-n}$
 $(a^m)^n = a^{m \cdot n}$
 $a^{-n} = \frac{1}{a^n}$
 $a^0 = 1$

Properties of Radicals
 $\sqrt{a} \cdot \sqrt{b} = \sqrt{ab}$
 $\frac{\sqrt{a}}{\sqrt{b}} = \sqrt{\frac{a}{b}}$
 $\sqrt[n]{a} = a^{\frac{1}{n}}$

Factoring
 GCF: $a^2 - 9 = (a - 3)(a + 3)$
 Difference of Squares: $a^2 - b^2 = (a - b)(a + b)$
 Sum of Squares: $a^2 + b^2$ (cannot be factored)

Prealgebra 2

Pre-Algebra Sheet 2

Order of Operations
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