

ALGEBRA I PRE-COURSE SKILLS PARENT LIST

Dear Parent,

The following is a list of concepts that are necessary for success in the newly-designed 2011-12 Algebra I course. Mastery of these Pre-Algebra concepts is necessary BEFORE entering Algebra I. Sample problems are given to indicate the level of difficulty necessary for mastery and success. Calculators should NOT be used to solve these problems. Please encourage your student to work through these questions, and then check their answers with the answer sheet found on the last page.

1. Integer Operations (2 numbers at a time)

- a. $-8 + (-3)$
- b. $3 - (-2)$
- c. $-6(-4)$
- d. $30 \div (-5)$

2. Integer Operations with more than two numbers; Rational Operations; Order of Operations

- a. $-\frac{2}{3} - \frac{3}{4}$
- b. $-2.5 \div 0.125$
- c. $6 - 8 + (-3) - (-2)$
- d. $(-3)(-5)(-1)(-2)$
- e. $6 - 5(-2+5)^2$

3. Sets of Real Numbers, Opposites, Absolute Value, Order

- a. List all of the sets of real numbers to which each number belongs

1.) ↓ 2.) ↓ 3.) ↓ 4.) ↓ 5.) ↓ 6.) ↓ 7.) ↓ 8.) ↓
 $-2.5, \sqrt{13}, 0, -27, 4.\overline{3}, 8, \sqrt{49}, \pi$

- b. Name the opposite of -3
- c. Find $|-5+3|$
- d. List the numbers in (a) above from least to greatest

4. Properties of Real Numbers

Identify the property of real numbers illustrated by each of the following:

a. $3 + (7 + 2) = (3 + 7) + 2$

b. $5(2 + x) = 5 \cdot 2 + 5x$

c. $17 + 0 = 17$

d. $\left(-\frac{1}{5}\right)(-5) = 1$

5. Evaluate Algebraic Expressions

a. Evaluate $2x - 3$ for $x = -4$

b. Evaluate $-3(2n - 3m)$ for $n = -5$ and $m = 2$

6. Identify and Combine Like Terms

a. $2x - 5y + x - 3y =$

b. $4m - m + 3(n + m) =$

7. Solve One-Step Equations Using Algebraic Steps and Showing Work

a. $-3x = -18$

b. $y - 7 = -5$

8. Solve Two-Step Equations Using Algebraic Steps and Showing Work

a. $2x - 3 = 15$

b. $-5x - 3 = 12$

9. Graphing Ordered Pairs on a 4-Quadrant Coordinate Plane and Associated Vocabulary

a. Construct an x-y coordinate axis

b. Label the quadrants and axes

c. Graph the points $(0,4)$, $(-2, 1)$, $(3, -2)$, $(-1, -3)$

10. LCM and GCF of numbers and variables

a. Find the LCM of 12 and 20

b. Find the GCF of $6xy$ and $8x^2$

11. Scientific Notation

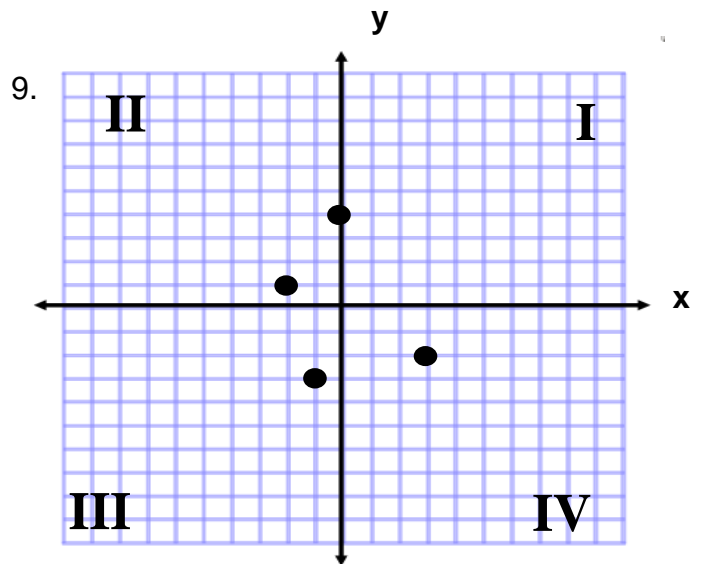
a. Write 5,230,000,000 in scientific notation

b. Write 2.7×10^{-5} in standard form

ANSWERS:

- 1 a.) -11
b.) 5
c.) 24
d.) -6
2. a.) $-1\frac{5}{12}$

b.) -20
c.) -3
d.) 30
e.) -39
- 3 a.) 1.) Rational Numbers, Real Numbers
2.) Irrational Numbers, Real Numbers
3.) Whole Numbers, Integers, Rational Numbers, Real Numbers
4.) Integers, Rational Numbers, Real Numbers
5.) Rational Numbers, Real Numbers
6.) Natural Numbers, Whole Numbers, Integers, Rational Numbers, Real Numbers
7.) Natural Numbers, Whole Numbers, Integers, Rational Numbers, Real Numbers
8.) Irrational Numbers, Real Numbers
b.) 3
c.) 2
d.) -27, -2.5, 0, π , $\sqrt{13}$, $4\bar{3}$, $\sqrt{49}$, 8
4. a.) Associative Property of Addition
b.) Distributive Property
c.) Identity Property of Addition
d.) Inverse Property of Multiplication
5. a.) -11
b.) 48
6. a.) $3x - 8y$
b.) $6m + 3n$
7. a.) $x = 6$
b.) $y = 2$
8. a.) $x = 9$
b.) $x = -3$
10. a.) 60
b.) $2x$



11 a.) 5.23×10^9

b.) 0.000027