LIVE Online Math Placement Information for Pre-Algebra

This document is meant to help you feel confident that your student is ready for LIVE Online Math's Pre-Algebra course. Please carefully consider the following and feel free to contact us if you have any questions!

General Information: Pre-Algebra is the course that is taken before Algebra and generally sets students on a more structured path of math courses (Pre-Algebra, then Algebra, then Geometry, etc.). It serves as a bridge between concrete arithmetic concepts and the more abstract-natured concepts in Algebra. Students coming into this course should have a strong grasp of all elementary math concepts and processes. Please see the Scope and Sequence for a complete list of topics covered in the course.

Gotta Haves: There are certain concepts and skills that students **must** have in order to be successful in this course. Namely, students should...

- Be very competent with all concepts and processes related to fractions. Some of the things students should be able to easily do include...
    - Adding, subtracting, multiplying, dividing and comparing fractions and mixed numbers
    - Reducing and expanding fractions to get equivalent fractions
    - Converting between mixed numbers and improper fractions
- Be very competent with all concepts and processes related to decimals. Some of the things students should be able to easily do include...
    - Adding, subtracting, multiplying, and dividing decimals
    - Having a strong intuitive understanding of decimal place values
- Be able to convert decimals to fractions and vice versa.
- Be very competent with what percents are and be able to work with them in a variety of contexts.
- Be very solid with doing multiple computations mentally (i.e. 50 × 4 – 17).
- Have experience applying the Order of Operations (PEMDAS) in a variety of contexts.
- Understand basic rule and operations related to solving one-step equations.
- Be able to determine the GCF (Greatest Common Factor) and LCM (Lease Common Multiple) of two given numbers (i.e. GCF of 8 and 12 is 4; LCM of 8 and 12 is 24).
- Have some familiarity with what exponents are and how they work.
- Be proficient with unit conversions in the metric (i.e. 24.5cm → ___m) and standard systems (14lbs. → ___ oz.).
- Be able to calculate the perimeter and area of simple shapes.
- Have some familiarity with negative numbers.

Should Haves: Some concepts and skills are not technically required, but it would be advisable for students to...

- Have some basic experience with Scientific Notation.
- Have experience working with formulas related to perimeter and area of various shapes.
- Have experience working with formulas related to surface area and volume if various solids.
- Be able to add, subtract, multiply, and divide negative numbers.
- Have has some experience with probability.

Below is a brief test which students who are ready for Pre-Algebra should be able to complete with ease. The results of this test should not be the determining factor for the student doing this course or not. Rather, consider the results as one piece of the puzzle. An answer key is provided on the next page. Also, students should not use a calculator.

For 1-5 perform the indicated operation(s).

1.) $\frac{2}{5} + \frac{3}{8}$ 2.) $3\frac{1}{6} - \frac{1}{4}$ 3.) $\frac{15}{4} \times \frac{16}{25}$ 4.) $2\frac{1}{2} \div \frac{5}{2}$ 5.) $\frac{1}{8} \times 6 + \frac{11}{8}$

6.) Convert $\frac{13}{4}$ to a mixed number.

For 7-9 perform the indicated operation(s).

7.) 5.6 + 9 – 3.2 8.) 44.2 × 1.2 9.) 105 ÷ .5

10.) Thinking about the decimal place value system...

a.) Which place value is the **9** in the following number? **403.091**

b.) Which place value is 10 times smaller than the hundredths place?

11.) Convert .08 into a fraction.

12.) Select all of the following which are true about 37%?

a.) It's like having $37.00.

b.) It's the same as 37 hundredths.

c.) It equals 3.7.

d.) It's like having 37 parts out of 100.

e.) It's the same as $\frac{37}{100}$.

f.) If 100 cookies were divided into 37 groups, that would be 37%.

13.) Evaluate 4^3 – (41 + 5) × .1

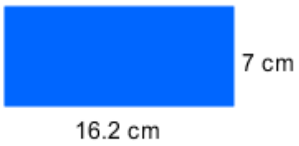
14.) For 10 and 12, state

a.) The GCF (Greatest Common Factor)

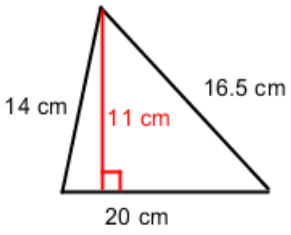
b.) The LCM (Least Common Multiple)

15.) Determine which figure below has the greater area.

a.)



b.)



16.) List the following numbers in order from least to greatest: -21.5, -40, 0, -17, $-\frac{1}{2}$

17.) On average, a restaurant serves 24 customers per hour from 4:30-7:00pm on weekdays. During the same time period on Saturdays and Sundays, the customers per hour rate rises to 40. How many customers will be served during the 4:30-7:00pm time slot over the course of a week?

Test Answer Key

For 1-5 perform the indicated operation(s).

1.) $\frac{2}{5} + \frac{3}{8}$ $\frac{31}{40}$ 2.) $3\frac{1}{6} - \frac{1}{4}$ $2\frac{11}{12}$ 3.) $\frac{15}{4} \times \frac{16}{25}$ $\frac{12}{5}$ **or** $2\frac{2}{5}$ 4.) $2\frac{1}{2} \div \frac{5}{2}$ **1** 5.) $\frac{1}{8} \times 6 + \frac{11}{8}$

6.) Convert $\frac{13}{4}$ to a mixed number. $3\frac{1}{4}$ $\frac{17}{8}$ **or** $2\frac{1}{8}$

For 7-9 perform the indicated operation(s).

7.) 5.6 + 9 – 3.2 **11.4** 8.) 44.2 × 1.2 **53.04** 9.) 105 ÷ .5 **210**

10.) Thinking about the decimal place value system...

a.) Which place value is the **9** in the following number? **403.091** **Hundredths**

b.) Which place value is 10 times smaller than the hundredths place? **Thousandths**

11.) Convert .08 into a fraction. $\frac{2}{25}$

12.) Select all of the following which are true about 37%?

a.) It's like having $37.00.

b.) It's the same as 37 hundredths.

c.) It equals 3.7.

d.) It's like having 37 parts out of 100.

e.) It's the same as $\frac{37}{100}$.

f.) If 100 cookies were divided into 37 groups, that would be 37%.

13.) Evaluate 4^3 – (41 + 5) × .1 **59.4**

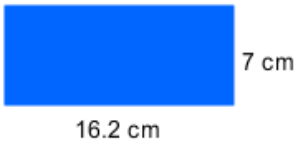
14.) For 10 and 12, state

a.) The GCF (Greatest Common Factor) **2**

b.) The LCM (Least Common Multiple) **60**

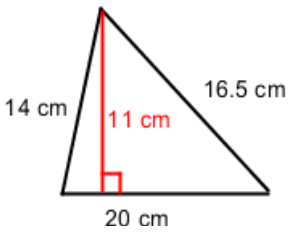
15.) Determine which figure below has the greater area.

a.)



Area: 113.4cm²

b.)



Area: 110cm²

The rectangle has the larger area.

16.) List the following numbers in order from least to greatest: -21.5, -40, 0, -17, $-\frac{1}{2}$ **-40, -21.5, -17,** $-\frac{1}{2}$ **, 0**

17.) On average, a restaurant serves 24 customers per hour from 4:30-7:00pm on weekdays. During the same time period on Saturdays and Sundays, the customers per hour rate rises to 40. How many customers will be served during the 4:30-7:00pm time slot over the course of a week? **500 customers in a week**