Basic operations questions involve addition, subtraction, multiplication, and division with whole numbers.

**Important Tip:** The ATI TEAS does not allow the use of a calculator on the test, so you must understand how to perform the various functions by hand.

**Performing Multiplication Tables**

As a general note, the ATI TEAS requires the applicants to understand both multiplication and division from 1 through 12. In order to answer these questions within the allotted amount of time, you will need to draw these numbers quickly from memory. Below is a multiple table from 12 x 12.
• Estimating is an important skill performed by rounding whole numbers to determine whether your calculations are wrong.

To begin, you have to understand place value. For example, if you are required to round a number to nearest hundred, you must understand which number is in the hundreds place.

Let’s look at the following number:
234,567. In expanded form, the number is 200,000 + 30,000 + 4,000 + 60 + 7.

• 7 = one’s or unit’s place
• 6 = ten’s place
• 5 = hundred’s place
• 4 = thousand’s place
• 3 = ten thousand’s place
• 2 = hundred thousand’s place

Now that you understand place value, we’ll discuss how to round whole numbers.

If the number to the right of the one you are rounding is 0, 1, 2, 3, or 4, then you leave the number you are rounding alone and add zeros to all digits to the right.

For example, 4,321 rounded to the nearest thousand’s place. The number next to the thousand’s place is 3. We leave the thousand’s place number alone and add zeros to all the right numbers. The answer is 4,000.
If the number to the right is 5, 6, 7, 8, or 9, then you will round the number up. For example, round the number 789 to the nearest hundred. The hundred digit is 7. Since the following number to the right is 8, we will round the hundred digit up. The answer is 800.

*Important Tip: Most of the math functions you will perform on the ATI TEAS and as a healthcare profession will be in the metric system. It is important that you familiarize yourself with metric units.*

### Understanding Order of Operations

In order to perform order of operations, you must understand what the correct order of operations are.

An easy mnemonic to remember the order is **PEMDAS**.

- **PEMDAS** stands for Parentheses, Exponents, Multiplication, Division, Addition, and Subtraction.

For example, please simplify the expression: \(5 \times (2+9)\).

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Next, we will perform the operation of multiplication: $5 \times 11 = 55$. 

The correct answer is 55.

Important Tip: There are six functions/letters in the word PEMDAS; however, there are only four steps to the order of operations. This is because multiplication and division are performed together in the same step. Addition and subtraction are also performed together in the same step.

For example, please simplify the expression: $5 + 9 \times 3 - 4 \div 2$.

To solve the problem, we will follow the rules established by PEMDAS. We can skip the parenthesis and exponents steps since there are none.

Step three is multiplication and division. All multiplication and division must be performed first in order from left to right.

So we multiple $9 \times 3$ and divide $4 \div 2$. 
UNDERSTANDING ORDER OF OPERATIONS

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Step three is multiplication and division. All multiplication and division must be performed first in order from left to right.
So we multiply \(9 \times 3\) and divide \(4 \div 2\).

\[
5 + 9 \times 3 - 4 \div 2 = 5 + 27 - 2
\]

Next, we will perform step four of addition and subtraction from left to right.

\[
5 + 27 - 2 = 32 - 2 = 30
\]

The correct answer is 30.