

Section 2.3 Important Questions

1) Explain why the answers to $3^3 + 2^3$ and $(3 + 2)^3$ are different.

The answers to $3^3 + 2^3$ and $(3 + 2)^3$ are different because in the first expression you cube the numbers first, then add them. In the second expression, you add the numbers first, then cube their sum.

2) Use the meaning of a power to explain why powers are evaluated before multiplication and division.

A power indicates that a number is multiplied by itself repeatedly. This has to be done before the power is multiplied or divided by another number because if it were multiplied or divided first, then it would be the product or quotient of that operation that would be evaluated as the power.

3) Why is the order of operations important? Include an example in your explanation.

The order of operations is important so that people get the same answer when they solve an expression. For example, to evaluate the expression $3 + 4^2 \times 3^2 - 5$, someone might want to add the 3 and 4 and square the sum if he did not know the order of operations, and his answer would be 196. Another person might square the 4 and 3, but then add 3 to 16 before multiplying by 9, and she would get an answer of 166. If everyone follows the same order of operations, there can only be one correct answer and it is 142.