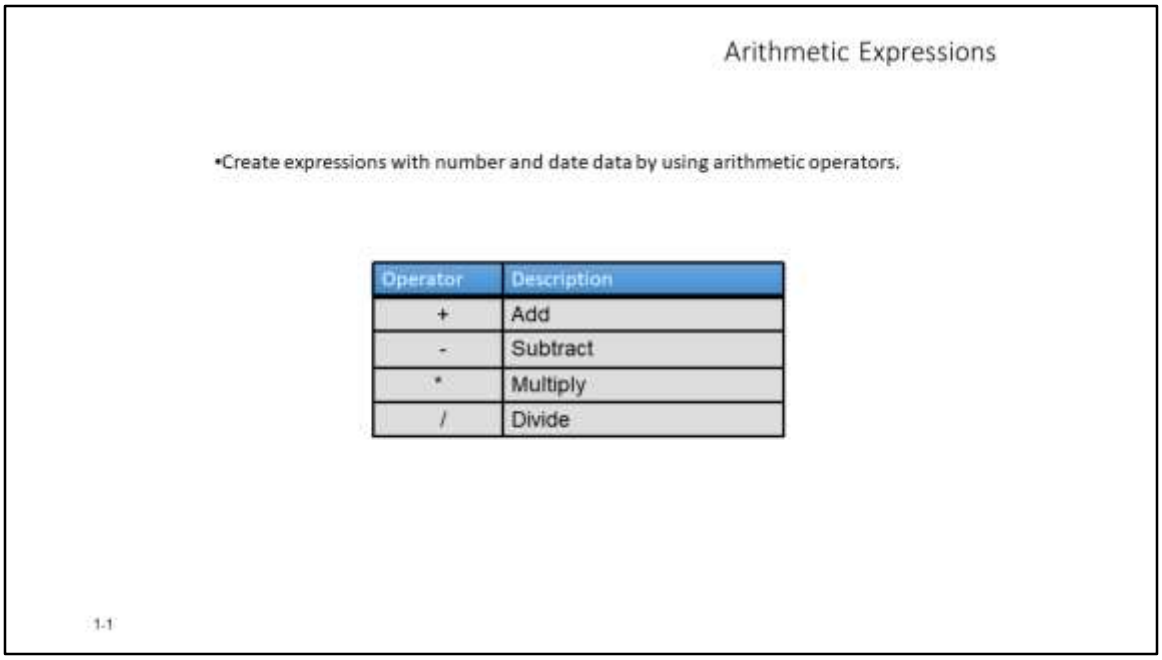


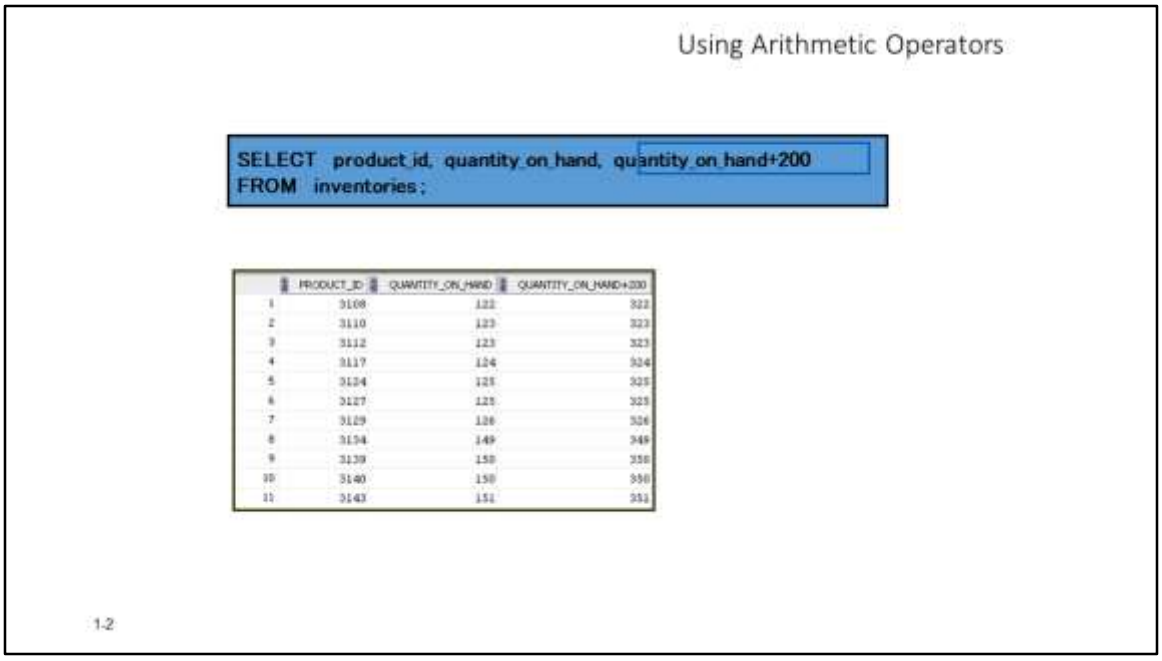
Arithmetic Expressions

You may need to modify the way in which data is displayed, or you may want to perform calculations, or look at what-if scenarios. All these are possible using arithmetic expressions. An arithmetic expression can contain column names, constant numeric values, and the arithmetic operators.

Arithmetic Operators

The slide lists the arithmetic operators that are available in SQL. You can use arithmetic operators in any clause of a SQL statement (except the `FROM` clause).

Note: With the `DATE` and `TIMESTAMP` data types, you can use the addition and subtraction operators only.



Using Arithmetic Operators

The example in the slide uses the addition operator to calculate a quantity increase of 200 for all products. The slide also displays a `QUANTITY_ON_HAND+300` column in the output.

Note that the resultant calculated column, `QUANTITY_ON_HAND+200`, is not a new column in the `EMPLOYEES` table; it is for display only. By default, the name of a new column comes from the calculation that generated it—in this case, `QUANTITY_ON_HAND+200`.

Note: The Oracle server ignores blank spaces before and after the arithmetic operator.

Operator Precedence

If an arithmetic expression contains more than one operator, multiplication and division are evaluated first. If operators in an expression are of the same priority, evaluation is done from left to right.

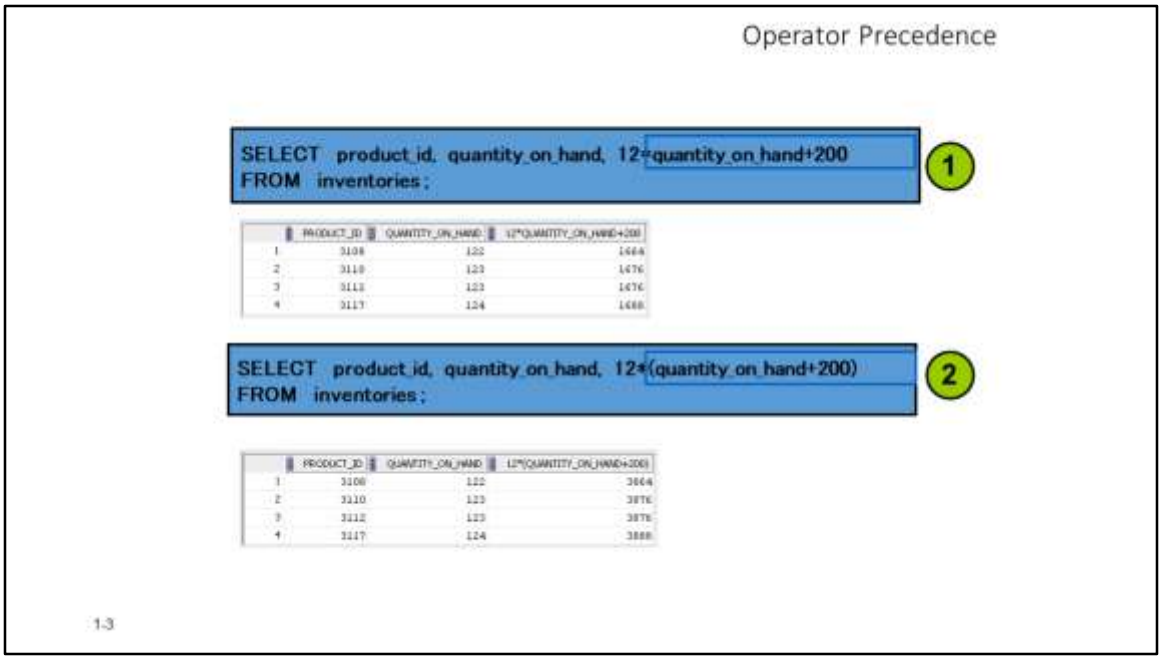
You can use parentheses to force the expression that is enclosed by the parentheses to be evaluated first.

Rules of Precedence

Multiplication and division occur before addition and subtraction.

Operators of the same priority are evaluated from left to right.

Parentheses are used to override the default precedence or to clarify the statement.



Operator Precedence (continued)

The first example in the slide displays the product_id, quantity_on_hand, and the cost of 12 numbers of each product if its price were increased by 200.. It calculates it by multiplying the quantity_on_hand with 12, plus 200. Note that multiplication is performed before addition.

Note: Use parentheses to reinforce the standard order of precedence and to improve clarity. For example, the expression in the slide can be written as `(12*quantity_on_hand)+200` with no change in the result.

Using Parentheses

You can override the rules of precedence by using parentheses to specify the desired order in which the operators are to be executed.

It calculates it as follows: adding a quantity of 200 to the quantity_on_hand, and then multiplying that subtotal with 12. Because of the parentheses, addition takes priority over multiplication.