Single-Row Functions

Single-row functions return a single result row for every row of a queried table or view. These functions can appear in select lists, WHERE clauses, START WITH and CONNECT BYclauses, and HAVING clauses.

## **Numeric Functions**

Numeric functions accept numeric input and return numeric values. Most numeric functions return NUMBER values that are accurate to 38 decimal digits. The transcendental functions COS, COSH, EXP, LN, LOG, SIN, SINH, SQRT, TAN, and TANH are accurate to 36 decimal digits. The transcendental functions ACOS, ASIN, ATAN, and ATAN2 are accurate to 30 decimal digits. The numeric functions are:

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| Function | Example | Description |
| ABS | SELECT ABS(-15) "Absolute"  FROM DUAL; | ABS returns the absolute value of *n*. |
| ACOS | SELECT ACOS(.3)"Arc\_Cosine"  FROM DUAL; | ACOS returns the arc cosine of *n*. The argument *n* must be in the range of -1 to 1, and the function returns a value in the range of 0 to *pi*, expressed in radians. |
| ASIN | SELECT ASIN(.3) "Arc\_Sine"  FROM DUAL; | ASIN returns the arc sine of *n*. The argument *n* must be in the range of -1 to 1, and the function returns a value in the range of -*pi*/2 to *pi*/2, expressed in radians. |
| ATAN | SELECT ATAN(.3) "Arc\_Tangent"  FROM DUAL; | ATAN returns the arc tangent of *n*. The argument *n* can be in an unbounded range and returns a value in the range of -*pi*/2 to *pi*/2, expressed in radians. |
| ATAN2 | SELECT ATAN2(.3, .2) "Arc\_Tangent2"  FROM DUAL; | ATAN2 returns the arc tangent of *n1* and *n2*. The argument *n1* can be in an unbounded range and returns a value in the range of -*pi* to *pi*, depending on the signs of *n1* and *n2*, expressed in radians. |
| CEIL | SELECT CEIL (8.75) FROM DUAL;  SELECT CEIL (8.05) FROM DUAL;  SELECT CEIL (-8.05) FROM DUAL;  SELECT CEIL (-8.75) FROM DUAL; | CEIL returns the smallest integer that is greater than or equal to *n*. The number *n* can always be written as the difference of an integer *k* and a positive fraction *f* such that 0 <= *f* < 1 and *n* = *k* - *f*. The value of CEIL is the integer *k*. Thus, the value of CEIL is *n* itself if and only if *n* is precisely an integer. |
| COS | SELECT COS(180 \* 3.14159265359/180) "Cosine of 180 degrees"  FROM DUAL; | COS returns the cosine of *n* (an angle expressed in radians). |
| EXP | SELECT EXP(4) "e to the 4th power"  FROM DUAL; | EXP returns e raised to the *n*th power, where e = 2.71828183... . The function returns a value of the same type as the argument. |
| FLOOR | SELECT FLOOR(15.75),FLOOR(-15.75) FROM DUAL; | FLOOR returns the largest integer equal to or less than *n*. The number *n* can always be written as the sum of an integer *k* and a positive fraction *f* such that 0 <= *f* < 1 and *n* = *k* + *f*. The value of FLOOR is the integer *k*. Thus, the value of FLOOR is *n* itself if and only if *n* is precisely an integer. |
| LN | SELECT LN(95) "Natural log of 95"  FROM DUAL; | LN returns the natural logarithm of *n*, where *n* is greater than 0. |
| LOG | SELECT LOG(10,100) "Log base 10 of 100"  FROM DUAL; | LOG returns the logarithm, base *n2*, of *n1*. The base *n2* can be any positive value other than 0 or 1 and *n1* can be any positive value. |