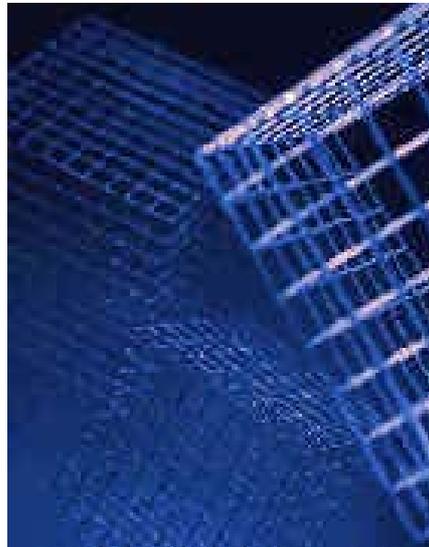


Syntax List



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Icons

Icon	Meaning
	Caution
	Example
	Note
	Recommendation
	Syntax

Typographic Conventions

Type Style	Description
<i>Example text</i>	Words or characters that appear on the screen. These include field names, screen titles, pushbuttons as well as menu names, paths and options. Cross-references to other documentation.
Example text	Emphasized words or phrases in body text, titles of graphics and tables.
EXAMPLE TEXT	Names of elements in the system. These include report names, program names, transaction codes, table names, and individual key words of a programming language, when surrounded by body text, for example, SELECT and INCLUDE.
Example text	Screen output. This includes file and directory names and their paths, messages, source code, names of variables and parameters as well as names of installation, upgrade and database tools.
EXAMPLE TEXT	Keys on the keyboard, for example, function keys (such as F2) or the ENTER key.
Example text	Exact user entry. These are words or characters that you enter in the system exactly as they appear in the documentation.
<Example text>	Variable user entry. Pointed brackets indicate that you replace these words and characters with appropriate entries.

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Syntax List

The [syntax notation \[Page 12\]](#) used in this document is BNF.

The syntax rules are specified in the following form:

```
Clause ::=
  Rule
```

If you want an explanation of the syntax rules, you can use the [clause](#) link to go to the relevant part of the Reference Manual. As a result, you exit the syntax list itself.

If further syntax rules are required for the individual syntax modules, you can access these by selecting the relevant links in the left-hand part of the syntax rules, or by directly selecting the syntax module in the alphabetical syntax list.



Syntax Notation

This documentation uses the BNF syntax notation with the following conventions:

	Explanation
KEYWORDS	Keywords are shown in uppercase letters for the sake of clarity. They can be entered in uppercase or lowercase letters.
<xyz>	Terms in angle brackets are placeholders for syntactical units explained in this document. Do not use angle brackets when entering an SQL statement.
clause ::= rule	Clauses are the building blocks of SQL statements. Rules describe how these building blocks are put together to form more complex clauses and also dictate the notation that is used.
clause ₁ clause ₂	The two clauses are written one after the other, separated by at least one blank.
[clause]	Optional clause. This clause can be ignored. Do not use square brackets when entering an SQL statement.
Clause1 clause2 ... clause _n	Alternative clauses. You can use exactly one of these clauses.
Clause, ...	The clause can be repeated as often as required. The individual repetitions must be written one after the other and separated by a comma and any number of blanks.
Clause...	The clause can be repeated as often as required. The individual repetitions must be written directly one after the other without a separating comma or blank.



add_definition

```
<add_definition> ::=
  ADD <column_definition [Page 17]>, ...
| ADD (<column_definition>, ...)
| ADD <constraint_definition [Page 19]>
```

| ADD <[referential constraint definition \[Page 47\]](#)>
 | ADD <[key definition \[Page 34\]](#)>

alias_name

<[alias_name](#)> ::=
 <[identifier \[Page 32\]](#)>

all_function

<[all_function](#)> ::=
 <[set function name \[Page 53\]](#)> ([ALL] <[expression \[Page 27\]](#)>)

alter_definition

<[alter_definition](#)> ::=
 ALTER CONSTRAINT <[constraint name \[Page 19\]](#)> CHECK <[search condition \[Page 52\]](#)>
 | ALTER <[key definition \[Page 34\]](#)>

alter_index_statement

<[alter_index_statement](#)> ::=
 ALTER INDEX <[index name \[Page 33\]](#)> [ON <[table name \[Page 59\]](#)>] ENABLE
 | ALTER INDEX <[index_name](#)> [ON <[table_name](#)>] DISABLE
 | ALTER INDEX <[index_name](#)> [ON <[table_name](#)>] INIT USAGE

alter_password_statement

<[alter_password_statement](#)> ::=
 ALTER PASSWORD <[old_password \[Page 43\]](#)> TO <[new_password](#)>
 | ALTER PASSWORD <[user_name \[Page 62\]](#)> <[new_password](#)>

alter_table_statement

<[alter_table_statement](#)> ::=
 ALTER TABLE <[table name \[Page 59\]](#)> <[add definition \[Page 12\]](#)>
 | ALTER TABLE <[table_name](#)> <[drop definition \[Page 25\]](#)>
 | ALTER TABLE <[table_name](#)> <[alter definition \[Page 13\]](#)>
 | ALTER TABLE <[table_name](#)> <[column change definition \[Page 17\]](#)>
 | ALTER TABLE <[table_name](#)> <[modify definition \[Page 38\]](#)>
 | ALTER TABLE <[table_name](#)> <[referential constraint definition \[Page 47\]](#)>

```
| ALTER TABLE <table_name> DROP FOREIGN KEY <referential constraint name
\[Page 47\]>
| ALTER TABLE <table_name> <sample definition \[Page 51\]>
```

alter_user_statement

```
<alter user statement> ::=
ALTER USER <user\_name \[Page 62\]> [<user\_mode \[Page 62\]>]
  [TIMEOUT <unsigned integer \[Page 61\]> | TIMEOUT NULL]
  [COSTWARNING <unsigned_integer> | COSTWARNING NULL]
  [COSTLIMIT <unsigned_integer> | COSTLIMIT NULL]
  [DEFAULT ROLE ALL [EXCEPT <role\_name \[Page 50\]>] | DEFAULT ROLE NONE
  | DEFAULT ROLE <role_name> [IDENTIFIED BY <password \[Page 43\]>]]
  [[NOT] EXCLUSIVE]
  [DEFAULTCODE <ASCII | EBCDIC | UNICODE>]
```

alter_usergroup_statement

```
<alter usergroup statement> ::=
ALTER USERGROUP <usergroup\_name \[Page 62\]> [<usergroup\_mode \[Page 62\]>]
  [TIMEOUT <unsigned integer \[Page 61\]> | TIMEOUT NULL]
  [COSTWARNING <unsigned_integer> | COSTWARNING NULL]
  [COSTLIMIT <unsigned_integer> | COSTLIMIT NULL]
  [DEFAULT ROLE ALL [EXCEPT <role\_name \[Page 50\]>] | DEFAULT ROLE NONE
  | DEFAULT ROLE <role_name> [IDENTIFIED BY <password \[Page 43\]>]]
  [[NOT] EXCLUSIVE]
  [DEFAULTCODE <ASCII | EBCDIC | UNICODE>]
```

argument

```
<argument> ::=
  <identifier \[Page 32\]>
```

arithmetic_function

```
<arithmetic function> ::=
  TRUNC ( <expression \[Page 27\]>[, <expression>] )
  | ROUND ( <expression>[, <expression>] )
  | NOROUND ( <expression> )
  | FIXED ( <expression>[, <unsigned integer \[Page 61\]> [,
  <unsigned_integer>] ] )
  | FLOAT ( <expression>[, <unsigned_integer> ] )
  | CEIL ( <expression> )
  | FLOOR ( <expression> )
  | SIGN ( <expression> )
  | ABS ( <expression> )
  | POWER ( <expression>, <expression> )
  | EXP ( <expression> )
```

```

| SQRT ( <expression> )
| LN ( <expression> )
| LOG ( <expression>, <expression> )
| PI
| LENGTH ( <expression> )
| INDEX ( <string\_spec \[Page 58\]>, <string_spec> [,<expression>[,
<expression>] ] )

```

assignment_statement

```

<assignment\_statement> ::=
  SET <variable\_name \[Page 63\]> = <expression \[Page 27\]>

```

between_predicate

```

<between\_predicate> ::=
  <expression \[Page 27\]> [NOT] BETWEEN <expression> AND <expression>

```

bool_predicate

```

<bool\_predicate> ::=
  <column\_spec \[Page 17\]> [ IS [NOT] <TRUE | FALSE>]

```

boolean_factor

```

<boolean\_factor> ::=
  [NOT] <predicate \[Page 44\]>
| [NOT] (<search\_condition \[Page 52\]>)

```

boolean_term

```

<boolean\_term> ::=
  <boolean\_factor \[Page 15\]>
| <boolean_term> AND <boolean_factor>

```

call_statement

```

<call\_statement> ::=
  CALL <dbproc\_name \[Page 23\]> [( <expression \[Page 27\]>, ... )] [WITH COMMIT]

```

 **cascade_option**

[<cascade_option>](#) ::=
 CASCADE
| RESTRICT

 **case_else_clause**

[<case_else_clause>](#) ::=
 ELSE [<statement \[Page 56\]>](#)

 **case_function**

[<case_function>](#) ::=
 [<simple_case_function \[Page 54\]>](#)
| [<searched_case_function \[Page 52\]>](#)

 **case_statement**

[<case_statement>](#) ::=
 [<simple_case_statement \[Page 54\]>](#)
| [<searched_case_statement \[Page 52\]>](#)

 **character**

[<character>](#) ::=
 [<digit \[Page 24\]>](#)
| [<letter \[Page 35\]>](#)
| [<extended_letter \[Page 28\]>](#)
| [<hex_digit \[Page 32\]>](#)
| [<language_specific_character \[Page 35\]>](#)
| [<special_character \[Page 55\]>](#)

 **close_statement**

[<close_statement>](#) ::=
 CLOSE [[<result_table_name \[Page 50\]>](#)]

column_attributes

```
<column_attributes> ::=
  [<key_or_not_null_spec [Page 35]>] [<default_spec [Page 23]>] [UNIQUE]
  [<constraint_definition [Page 19]>]
  [REFERENCES <referenced_table [Page 46]> [(<referenced_column [Page 46]>)]
  [<delete_rule [Page 23]>]]
```

column_change_definition

```
<column_change_definition> ::=
  COLUMN <column_name [Page 17]> NOT NULL
  | COLUMN <column_name> DEFAULT NULL
  | COLUMN <column_name> ADD <default_spec [Page 23]>
  | COLUMN <column_name> ALTER <default_spec>
  | COLUMN <column_name> DROP DEFAULT
```

column_definition

```
<column_definition> ::=
  <column_name [Page 17]> <data_type [Page 22]> [<column_attributes [Page 17]>]
  | <column_name> <domain_name [Page 25]> [<column_attributes>]
```

column_list

```
<column_list> ::=
  <column_name [Page 17]>
  | <column_list>, <column_name>
```

column_name

```
<column_name> ::=
  <identifier [Page 32]>
```

column_spec

```
<column_spec> ::=
  <column_name [Page 17]>
  | <table_name [Page 59]>.<column_name>
  | <reference_name [Page 46]>.<column_name>
  | <result_table_name [Page 50]>.<column_name>
```

comment

```
<comment> ::=
  <string_literal [Page 57]>
  | <parameter_name [Page 43]>
```

comment_on_statement

```
<comment_on_statement> ::=
  COMMENT ON <object_spec [Page 42]> IS <comment [Page 18]>
```

commit_statement

```
<commit_statement> ::=
  COMMIT [WORK]
```

comp_op

```
<comp_op> ::=
  <
  | >
  | <>
  | !=
  | =
  | <=
  | >=
  | -> | -< | -> (for machines with EBCDIC code)
  | ~> | ~< | ~> (for machines with ASCII code)
```

comparison_predicate

```
<comparison_predicate> ::=
  <expression [Page 27]> <comp_op [Page 18]> <expression>
  | <expression> <comp_op> <subquery [Page 58]>
  | <expression_list [Page 28]> <equal_or_not [Page 27]> (<expression_list>)
  | <expression_list> <equal_or_not> <subquery>
```

connect_option

```
<connect_option> ::=
  SQLMODE <INTERNAL | ANSI | DB2 | ORACLE>
  | ISOLATION LEVEL <unsigned_integer [Page 61]>
  | TIMEOUT <unsigned_integer>
```

connect_statement

```
<connect_statement> ::=
  CONNECT <parameter_name [Page 43]> IDENTIFIED BY <parameter_name>
  [<connect_option [Page 18]>...]
| CONNECT <parameter_name> IDENTIFIED BY <password [Page 43]>
  [<connect_option>...]
| CONNECT <user_name [Page 62]> IDENTIFIED BY <parameter_name>
  [<connect_option>...]
| CONNECT <user_name> IDENTIFIED BY <password> [<connect_option>...]
```

constraint_definition

```
<constraint_definition> ::=
  CHECK <search_condition [Page 52]>
| CONSTRAINT <search_condition>
| CONSTRAINT <constraint_name [Page 19]> CHECK <search_condition>
```

constraint_name

```
<constraint_name> ::=
  <identifier [Page 32]>
```

conversion_function

```
<conversion_function> ::=
  NUM (<expression [Page 27]>)
| CHR (<expression>[, <unsigned_integer [Page 61]>])
| HEX (<expression>)
| HEXTORAW (<expression>)
| CHAR (<expression>[, <datetimeformat [Page 22]>])
```

create_dbproc_statement

```
<create_dbproc_statement> ::=
  CREATE DBPROC <procedure_name [Page 44]> [ (<formal_parameter [Page 30]>, ... )
  [RETURNS CURSOR] AS <routine [Page 50]>
```

create_domain_statement

```
<create_domain_statement> ::=
  CREATE DOMAIN <domain_name [Page 25]> <data_type [Page 22]> [<default_spec
[Page 23]>] [<constraint_definition [Page 19]>]
```

create_index_statement

```
<create_index_statement> ::=
  CREATE [UNIQUE] INDEX <index_name [Page 33]> ON <table_name [Page 59]>
(<column_name [Page 17]> [ASC | DESC],...)
```

create_role_statement

```
<create_role_statement> ::=
  CREATE ROLE <role_name [Page 50]> [IDENTIFIED BY <password [Page 43]>]
```

create_sequence_statement

```
<create_sequence_statement> ::=
  CREATE SEQUENCE [<owner [Page 43]>.]<sequence_name [Page 53]>
  [INCREMENT BY <integer [Page 34]>]
  [START WITH <integer>]
  [MAXVALUE <integer> | NOMAXVALUE]
  [MINVALUE <integer> | NOMINVALUE]
  [CYCLE | NOCYCLE]
  [CACHE <unsigned_integer [Page 61]> | NOCACHE]
  [ORDER|NOORDER]
```

create_synonym_statement

```
<create_synonym_statement> ::=
  CREATE [PUBLIC] SYNONYM [<owner [Page 43]>.]<synonym_name [Page 58]> FOR
<table_name [Page 59]>
```

create_table_statement

```
<create_table_statement> ::=
  CREATE TABLE <table_name [Page 59]> (<column_definition>
  [,<table_description_element [Page 58]>,...]) [IGNORE ROLLBACK]
[<sample_definition [Page 51]>]
| CREATE TABLE <table_name> [(<table_description_element>,...)]
  [IGNORE ROLLBACK] [<sample_definition>] AS <query_expression [Page
```

```
45] > [duplicates clause \[Page 26\]] >
| CREATE TABLE <table_name> LIKE <table_name> [IGNORE ROLLBACK]
```



create_table_temp

<[create_table_temp \[Page 56\]](#)> ::= =
 <[create_table_statement \[Page 20\]](#)> for creating temporary tables,
 that is, the [table_name \[Page 59\]](#) in the CREATE TABLE statement
 must have the format TEMP.<[identifier \[Page 32\]](#)>.



create_trigger_statement

<[create_trigger_statement](#)> ::= =
 CREATE TRIGGER <[trigger_name \[Page 60\]](#)> FOR <[table_name \[Page 59\]](#)> AFTER
 <[trigger_event \[Page 60\]](#), ...>
 EXECUTE (<[routine \[Page 50\]](#)>) [WHENEVER <[search_condition \[Page 52\]](#)>]



create_user_statement

<[create_user_statement](#)> ::= =
 CREATE USER <[user_name \[Page 62\]](#)> PASSWORD <[password \[Page 43\]](#)>
 [<[user_mode \[Page 62\]](#)>]
 [TIMEOUT <[unsigned_integer \[Page 61\]](#)>]
 [COSTWARNING <unsigned_integer>]
 [COSTLIMIT <unsigned_integer>]
 [[NOT] EXCLUSIVE]
 [DEFAULTCODE <ASCII | EBCDIC | UNICODE>]
 | CREATE USER <user_name> PASSWORD <password> LIKE <[source_user \[Page 55\]](#)>
 | CREATE USER <user_name> PASSWORD <password> USERGROUP
 <[usergroup_name \[Page 62\]](#)>



create_usergroup_statement

<[create_usergroup_statement](#)> ::= =
 CREATE USERGROUP <[usergroup_name \[Page 62\]](#)>
 [<[usergroup_mode \[Page 62\]](#)>]
 [TIMEOUT <[unsigned_integer \[Page 61\]](#)>]
 [COSTWARNING <unsigned_integer>]
 [COSTLIMIT <unsigned_integer>]
 [[NOT] EXCLUSIVE]
 [DEFAULTCODE <ASCII | EBCDIC | UNICODE>]

create_view_statement

```
<create_view_statement> ::=
  CREATE [OR REPLACE] VIEW <table_name [Page 59]> [( <alias_name [Page
13]>, ... )]
  AS <query_expression [Page 45]> [WITH CHECK OPTION]
```

data_type

```
<data_type> ::=
  CHAR[ACTER] [( <unsigned_integer [Page 61]> )] [ASCII | BYTE | EBCDIC |
UNICODE]
| VARCHAR [( <unsigned_integer> )] [ASCII | BYTE | EBCDIC | UNICODE]
| LONG [VARCHAR] [ASCII | BYTE | EBCDIC | UNICODE]
| BOOLEAN
| FIXED ( <unsigned_integer> [, <unsigned_integer> ] )
| FLOAT ( <unsigned_integer> )
| INT[EGER]
| SMALLINT
| DATE
| TIME
| TIMESTAMP
```

date_function

```
<date_function> ::=
  ADDDATE ( <date_or_timestamp_expression [Page 22]>, <expression [Page 27]> )
| SUBDATE ( <date_or_timestamp_expression>, <expression> )
| DATEDIFF ( <date_or_timestamp_expression>,
<date_or_timestamp_expression> )
| DAYOFWEEK ( <date_or_timestamp_expression> )
| WEEKOFYEAR ( <date_or_timestamp_expression> )
| DAYOFMONTH ( <date_or_timestamp_expression> )
| DAYOFYEAR ( <date_or_timestamp_expression> )
| MAKEDATE ( <expression>, <expression> )
| DAYNAME ( <date_or_timestamp_expression> )
| MONTHNAME ( <date_or_timestamp_expression> )
```

date_or_timestamp_expression

```
<date_or_timestamp_expression> ::=
  <expression [Page 27]>
```

datetimeformat

```
<datetimeformat> ::=
  EUR
| INTERNAL
```

| ISO
| JIS
| USA

dbproc_name

<dbproc_name> ::=
[<owner [Page 43]>.]<procedure_name [Page 44]>

declare_cursor_statement

<declare_cursor_statement> ::=
DECLARE <result_table_name [Page 50]> CURSOR FOR <select_statement [Page 53]>

default_predicate

<default_predicate> ::=
<column_spec [Page 17]> <comp_op [Page 18]> DEFAULT

default_spec

<default_spec> ::=
DEFAULT <literal [Page 36]>
| DEFAULT NULL
| DEFAULT USER
| DEFAULT USERGROUP
| DEFAULT DATE
| DEFAULT TIME
| DEFAULT TIMESTAMP
| DEFAULT TRUE
| DEFAULT FALSE
| DEFAULT TRANSACTION
| DEFAULT STAMP
| DEFAULT SERIAL[(<unsigned_integer [Page 61]>)]

delete_rule

<delete_rule> ::=
ON DELETE CASCADE
| ON DELETE RESTRICT
| ON DELETE SET DEFAULT
| ON DELETE SET NULL

delete_statement

```
<delete_statement> ::=
  DELETE [FROM] <table_name [Page 59]> [<reference_name [Page 46]>]
    [KEY <key_spec [Page 35]>, ...] [WHERE <search_condition [Page 52]>]
| DELETE [FROM] <table_name> [<reference_name>]
  WHERE CURRENT OF <result_table_name [Page 50]>
```

Delimiter token

```
<delimiter_token> ::=
  ( | ) | , | . | + | - | * | / | < | > | <> | != | = | <= | >=
| →= | →< | →> (for machines with EBCDIC code)
| ~ = | ~ < | ~ > (for machines with ASCII code)
```

derived_column

```
<derived_column> ::=
  <expression [Page 27]> [ [AS] <result_column_name [Page 50]> ]
| <result_column_name> = <expression>
```

digit

```
<digit> ::=
  0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9
```

digit_sequence

```
<digit_sequence> ::=
  <digit [Page 24]> ...
```

distinct_function

```
<distinct_function> ::=
  <set_function_name [Page 53]> ( DISTINCT <expression [Page 27]> )
```

distinct_spec

```
<distinct_spec> ::=
  DISTINCT
| ALL
```

domain_name

```
<domain_name> ::=
  [<owner [Page 43]>.]<identifier [Page 32]>
```

double_quotes

```
<double_quotes> ::=
  "
```

drop_dbproc_statement

```
<drop_dbproc_statement> ::=
  DROP DBPROC <dbproc_name [Page 23]>
```

drop_definition

```
<drop_definition> ::=
  DROP <column_name [Page 17]>, ... [<cascade_option [Page 16]>] [RELEASE
SPACE]
| DROP (<column_name>, ...) [<cascade_option>] [RELEASE SPACE]
| DROP CONSTRAINT <constraint_name [Page 19]>
| DROP PRIMARY KEY
```

drop_domain_statement

```
<drop_domain_statement> ::=
  DROP DOMAIN <domain_name [Page 25]>
```

drop_index_statement

```
<drop_index_statement> ::=
  DROP INDEX <index_name [Page 33]> [ON <table_name [Page 59]>]
```

drop_role_statement

```
<drop_role_statement> ::=
  DROP ROLE <role_name [Page 50]>
```

 **drop_sequence_statement**

[<drop_sequence_statement>](#) ::=
DROP SEQUENCE [[<owner \[Page 43\]>](#).][<sequence_name \[Page 53\]>](#)

 **drop_synonym_statement**

[<drop_synonym_statement>](#) ::=
DROP [PUBLIC] SYNONYM [[<owner \[Page 43\]>](#).][<synonym_name \[Page 58\]>](#)

 **drop_table_statement**

[<drop_table_statement>](#) ::=
DROP TABLE [<table_name \[Page 59\]>](#) [[<cascade_option \[Page 16\]>](#)]

 **drop_trigger_statement**

[<drop_trigger_statement>](#) ::=
DROP TRIGGER [<trigger_name \[Page 60\]>](#) OF [<table_name \[Page 59\]>](#)

 **drop_user_statement**

[<drop_user_statement>](#) ::=
DROP USER [<user_name \[Page 62\]>](#) [[<cascade_option \[Page 16\]>](#)]

 **drop_usergroup_statement**

[<drop_usergroup_statement>](#) ::=
DROP USERGROUP [<usergroup_name \[Page 62\]>](#) [[<cascade_option \[Page 16\]>](#)]

 **drop_view_statement**

[<drop_view_statement>](#) ::=
DROP VIEW [<table_name \[Page 59\]>](#) [[<cascade_option \[Page 16\]>](#)]

 **duplicates_clause**

[<duplicates_clause>](#) ::=
REJECT DUPLICATES

| IGNORE DUPLICATES
| UPDATE DUPLICATES

equal_or_not

[<equal_or_not>](#) ::=
<>
| =
| => (for machines with EBCDIC code)
| ~= (for machines with ASCII code)

exists_predicate

[<exists_predicate>](#) ::=
EXISTS [<subquery \[Page 58\]>](#)

exists_table_statement

[<exists_table_statement>](#) ::=
EXISTS TABLE [<table_name \[Page 59\]>](#)

explain_statement

[<explain_statement>](#) ::=
EXPLAIN [([<result_table_name \[Page 50\]>](#))] [<query_statement \[Page 45\]>](#)
| EXPLAIN [([<result_table_name>](#))] [<single_select_statement \[Page 55\]>](#)

exponent

[<exponent>](#) ::=
[[<sign \[Page 54\]>](#)] [[[<digit \[Page 24\]>](#)] <digit>] <digit>

expression

[<expression>](#) ::=
[<term \[Page 59\]>](#)
| [<expression>](#) + [<term>](#)
| [<expression>](#) - [<term>](#)

expression_list

```
<expression_list> ::=
  (<expression [Page 27]>, ...)
```

extended_expression

```
<extended_expression> ::=
  <expression [Page 27]>
  | DEFAULT
  | STAMP
```

extended_letter

```
<extended_letter> ::=
  #
  | @
  | $
```

extended_value_spec

```
<extended_value_spec> ::=
  <value_spec [Page 62]>
  | DEFAULT
  | STAMP
```

extraction_function

```
<extraction_function> ::=
  YEAR ( <date_or_timestamp_expression [Page 22]> )
  | MONTH ( <date_or_timestamp_expression> )
  | DAY ( <date_or_timestamp_expression> )
  | HOUR ( <time_or_timestamp_expression [Page 59]> )
  | MINUTE ( <time_or_timestamp_expression> )
  | SECOND ( <time_or_timestamp_expression> )
  | MICROSECOND ( <expression [Page 27]> )
  | TIMESTAMP ( <expression>[, <expression> ] )
  | DATE ( <expression> )
  | TIME ( <expression> )
```

factor

```
<factor> ::=
  [<sign [Page 54]>] <value_spec [Page 62]>
  | [<sign>] <column_spec [Page 17]>
```

| [[<sign>](#)] [<function_spec \[Page 30\]>](#)
 | [[<sign>](#)] [<set_function_spec \[Page 53\]>](#)
 | [<scalar_subquery \[Page 52\]>](#)
 | [<expression \[Page 27\]>](#)

fetch_statement

[<fetch_statement>](#) ::=
 FETCH [FIRST | LAST | NEXT | PREV | [<position \[Page 43\]>](#) | SAME]
 [[<result_table_name \[Page 50\]>](#)]
 INTO [<parameter_spec \[Page 43\]>](#), ...

final_select

[<final_select>](#) ::=
[<select_statement \[Page 53\]>](#)

first_character

[<first_character>](#) ::=
[<letter \[Page 35\]>](#)
 | [<extended_letter \[Page 28\]>](#)
 | [<language_specific_character \[Page 35\]>](#)

first_password_character

[<first_password_character>](#) ::=
[<letter \[Page 35\]>](#)
 | [<extended_letter \[Page 28\]>](#)
 | [<language_specific_letter \[Page 35\]>](#)
 | [<digit \[Page 24\]>](#)

fixed_point_literal

[<fixed_point_literal>](#) ::=
 [[<sign \[Page 54\]>](#)][<digit_sequence \[Page 24\]>](#)[[.<digit_sequence>](#)]
 | [[sign](#)][<digit_sequence>](#).
 | [[sign](#)].[<digit_sequence>](#)

floating_point_literal

```
<floating_point_literal> ::=
  <mantissa [Page 37]>E<exponent [Page 27]>
| <mantissa>e<exponent>
```

formal_parameter

```
<formal_parameter> ::=
  IN <argument [Page 14]> <data_type [Page 22]>
| OUT <argument> <data_type>
| INOUT <argument> <data_type>
```

from_clause

```
<from_clause> ::=
  FROM <from_table_spec [Page 30]>, ...
```

from_table_spec

```
<from_table_spec> ::=
  <table_name [Page 59]> [<reference_name [Page 46]>]
| <result_table_name [Page 50]> [<reference_name>]
| (<query_expression [Page 45]>) [<reference_name>]
| <joined_table [Page 34]>
```

function_spec

```
<function_spec> ::=
  <arithmetic_function [Page 14]>
| <trigonometric_function [Page 60]>
| <string_function [Page 57]>
| <date_function [Page 22]>
| <time_function [Page 59]>
| <extraction_function [Page 28]>
| <special_function [Page 56]>
| <conversion_function [Page 19]>
```

grant_statement

```
<grant_statement> ::=
  GRANT <priv_spec [Page 44]>, ... TO <grantee [Page 31]>, ... [WITH GRANT
OPTION]
| GRANT EXECUTE ON <dbproc_name [Page 23]> TO <grantee>, ...
```

| GRANT SELECT ON <[sequence_name \[Page 53\]](#)> TO <grantee>, ... [WITH GRANT OPTION]

grant_user_statement

<[grant_user_statement](#)> ::=
 GRANT USER <[granted_users \[Page 31\]](#)> [FROM <[user_name \[Page 62\]](#)>] TO
 <user_name>

grant_usergroup_statement

<[grant_usergroup_statement](#)> ::=
 GRANT USERGROUP <[granted_usergroups \[Page 31\]](#)> [FROM <[user_name \[Page 62\]](#)>]
 TO <user_name>

granted_usergroups

<[granted_usergroups](#)> ::=
 <[usergroup_name \[Page 62\]](#)>, ...
 | *

granted_users

<[granted_users](#)> ::=
 <[user_name \[Page 62\]](#)>, ...
 | *

grantee

<[grantee](#)> ::=
 PUBLIC
 | <[user_name \[Page 62\]](#)>
 | <[usergroup_name \[Page 62\]](#)>
 | <[role_name \[Page 50\]](#)>

group_clause

<[group_clause](#)> ::=
 GROUP BY <[expression \[Page 27\]](#)>, ...

having_clause

[<having_clause>](#) ::=
 HAVING [<search_condition \[Page 52\]>](#)

hex_digit

[<hex_digit>](#) ::=
 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9
 | A | B | C | D | E | F
 | a | b | c | d | e | f

hex_digit_seq

[<hex_digit_seq>](#) ::=
[<hex_digit \[Page 32\]>](#)[<hex_digit>](#)
 | [<hex_digit_seq>](#)[<hex_digit>](#)[<hex_digit>](#)

hex_literal

[<hex_literal>](#) ::=
 x' '
 | X' '
 | x'[<hex_digit_seq \[Page 32\]>](#)'
 | X'[<hex_digit_seq>](#)'

hours

[<hours>](#) ::=
[<expression \[Page 27\]>](#)

identifier

[<identifier>](#) ::=
[<simple_identifier \[Page 55\]>](#)
 | [<double quotes \[Page 25\]>](#)[<special_identifier \[Page 56\]>](#)[<double_quotes>](#)

identifier_tail_character

[<identifier_tail_character>](#) ::=
[<letter \[Page 35\]>](#)
 | [<extended_letter \[Page 28\]>](#)

| [<language_specific_character \[Page 35\]>](#)
| [<digit \[Page 24\]>](#)
| [<underscore \[Page 60\]>](#)

if_statement

[<if_statement>](#) ::=
IF [<search_condition \[Page 52\]>](#) THEN [<statement \[Page 56\]>](#) [ELSE [<statement>](#)]

in_predicate

[<in_predicate>](#) ::=
[<expression \[Page 27\]>](#) [NOT] IN [<subquery \[Page 58\]>](#)
| [<expression>](#) [NOT] IN [<expression_list \[Page 28\]>](#)
| [<expression_list>](#) [NOT] IN [<subquery>](#)
| [<expression_list>](#) [NOT] IN ([<expression_list>](#),...)

index_name

[<index_name>](#) ::=
[<identifier \[Page 32\]>](#)

indicator_name

[<indicator_name>](#) ::=
[<parameter_name \[Page 43\]>](#)

initial_select

[<initial_select>](#) ::=
[<query_spec \[Page 45\]>](#)

insert_expression

[<insert_expression>](#) ::=
[<extended_expression \[Page 28\]>](#)
| [<subquery \[Page 58\]>](#)

insert_statement

```
<insert_statement> ::=
  INSERT [INTO] <table_name [Page 59]> [( <column_name [Page 17]>, ... )]
  VALUES ( <insert_expression [Page 33]>, ... ) [ <duplicates_clause [Page 26]> ]
| INSERT [INTO] <table_name> [( <column_name>, ... )]
  <query_expression [Page 45]> [ <duplicates_clause> ]
| INSERT [INTO] <table_name> SET <set_insert_clause [Page 53]>, ...
  [ <duplicates_clause> ]
```

integer

```
<integer> ::=
  [ <sign [Page 54]> ] <unsigned_integer [Page 61]>
```

join_predicate

```
<join_predicate> ::=
  <expression [Page 27]> [ <outer_join_indicator [Page 43]> ] <comp_op [Page 18]>
  <expression> [ <outer_join_indicator> ]
```

join_spec

```
<join_spec> ::=
  ON <search_condition [Page 52]>
```

joined_table

```
<joined_table> ::=
  <from_table_spec [Page 30]> CROSS JOIN <from_table_spec>
| <from_table_spec> [INNER] JOIN <from_table_spec> <join_spec [Page 34]>
| <from_table_spec> [<LEFT|RIGHT|FULL> [OUTER]] JOIN
  <from_table_spec> <join_spec>
```

key_definition

```
<key_definition> ::=
  PRIMARY KEY ( <column_name [Page 17]>, ... )
```

key_or_not_null_spec

<[key_or_not_null_spec](#)> ::=
 [PRIMARY] KEY
 | NOT NULL [WITH DEFAULT]

key_spec

<[key_spec](#)> ::=
 <[column_name \[Page 17\]](#)> = <[value_spec \[Page 62\]](#)>

key_word

<[key_word](#)> ::=
 <[not_reserved_key_word \[Page 39\]](#)>
 | <[reserved_keyword \[Page 48\]](#)>

language_specific_character

<[language_specific_character](#)> ::=
 <every letter that occurs in a Northern, Central, or Southern European language
 and is not included in the <[letter \[Page 35\]](#)> list>
 | <for UNICODE-enabled databases: every character that is not included in the ASCII code
 list from 0 to 127>

letter

<[letter](#)> ::=
 A | B | C | D | E | F | G | H | I | J | K | L | M
 | N | O | P | Q | R | S | T | U | V | W | X | Y | Z
 | a | b | c | d | e | f | g | h | i | j | k | l | m
 | n | o | p | q | r | s | t | u | v | w | x | y | z

like_expression

<[like_expression](#)> ::=
 <[expression \[Page 27\]](#)>
 | '<[pattern_element \[Page 43\]](#)>...'

like_predicate

```
<like_predicate> ::=
  <expression [Page 27]> [NOT] LIKE <like_expression [Page 35]> [ESCAPE
  <expression>]
```

literal

```
<literal> ::=
  <string_literal [Page 57]>
  | <numeric_literal [Page 42]>
```

local_variable

```
<local_variable> ::=
  <variable_name [Page 63]> <data_type [Page 22]>
```

local_variable_list

```
<local_variable_list> ::=
  <local_variable [Page 36]>
  | <local_variable_list>;<local_variable>
```

local_variables

```
<local_variables> ::=
  VAR <local_variable_list [Page 36]>;
```

lock_option

```
<lock_option> ::=
  WITH LOCK [(IGNORE) | (NOWAIT)] [EXCLUSIVE | OPTIMISTIC] [ISOLATION
  LEVEL <unsigned_integer [Page 61]>]
```

lock_spec

```
<lock_spec> ::=
  TABLE <table_name [Page 59]>, ...
  | <row_spec [Page 51]>...
  | TABLE <table_name>, ... <row_spec>...
```

lock_statement

```
<lock_statement> ::=
  LOCK [(WAIT) | (NOWAIT)] <lock_spec [Page 36]> IN SHARE MODE
| LOCK [(WAIT) | (NOWAIT)] <lock_spec> IN EXCLUSIVE MODE
| LOCK [(WAIT) | (NOWAIT)] <row_spec [Page 51]>... OPTIMISTIC
| LOCK [(WAIT) | (NOWAIT)] <lock_spec> IN SHARE MODE <lock_spec> IN
EXCLUSIVE MODE
```

mantissa

```
<mantissa> ::=
  <fixed_point_literal [Page 29]>
```

mapchar_set_name

```
<mapchar_set_name> ::=
  <identifier [Page 32]>
```

match_char

```
<match_char> ::=
  Every character except
  %
  | *
  | X'1F'
  | <underscore [Page 60]>
  | ?
  | X'1E'
  | (
```

Match set

```
<match_set> ::=
  <underscore [Page 60]>
| ?
| X'1E'
| <match_char [Page 37]>
| ([<
  ^ (only for code type EBCDIC)
  | ~ (only for code type ASCII)
  | ~
  >]<match_class>...)
```

match_string

```
<match_string> ::=
%
| X'1F'
```

minutes

```
<minutes> ::=
<expression [Page 27]>
```

modify_definition

```
<modify_definition> ::=
MODIFY (<column_name [Page 17]> [<data_type [Page 22]>] [<column_attributes
[Page 17]>]...)
```

monitor_statement

```
<monitor_statement> ::=
MONITOR INIT
```

named_query_expression

```
<named_query_expression> ::=
<named_query_term [Page 39]>
| <named_query_expression> UNION [ALL] <query_term [Page 46]>
| <named_query_expression> EXCEPT [ALL] <query_term>
```

named_query_primary

```
<named_query_primary> ::=
<named_query_spec [Page 38]>
| (<named_query_expression [Page 38]>)
```

named_query_spec

```
<named_query_spec> ::=
SELECT [<distinct_spec [Page 24]>] <result_table_name [Page 50]> (<select_column
[Page 53]>, ...) <table_expression [Page 59]>
```

named_query_term

<named_query_term> ::=
 <named_query_primary [Page 38]>
 | <named_query_term> INTERSECT [ALL] <query_primary [Page 45]>

named_select_statement

<named_select_statement> ::=
 <named_query_expression [Page 38]> [<order_clause [Page 42]>] [<update_clause
 [Page 61]>] [<lock_option [Page 36]>] [FOR REUSE]

new_index_name

<new_index_name> ::=
 <index_name [Page 33]>

new_table_name

<new_table_name> ::=
 <table_name [Page 59]>

next_stamp_statement

<next_stamp_statement> ::=
 NEXT STAMP [INTO] <parameter_name [Page 43]>

not_reserved_key_word

<not_reserved_key_word> ::=

ACTION	ACTIVATE	ADABAS	ADD	ADDRESS
ADD_MONTHS	AFTER	ANALYZE	AND	ANSI
APPEND	ARCHIVE	AS	ASC	AT
AUTO	AUTOSAVE			
BACKUP_PAGES	BAD	BEFORE	BEGIN	BEGINLOAD
BEGINPROC	BETWEEN	BLOCK	BLOCKSIZE	BOTH
BREAK	BUFFER	BUFFERPOOL	BWHIERACHY	BY
CACHE	CACHELIMIT	CACHES	CALL	CANCEL
CASCADE	CAST	CATALOG	CATCH	CHECKPOINT

CLEAR	CLOSE	CLUSTER	COMMENT	COMMIT
COMPLETE	COMPUTE	CONFIG	CONNECT	CONSTRAI
CONTAINER	CONTINUE	COSTLIMIT	COSTWARNING	CREATE
CURRENT_DATE	CURRENT_SCHEMA	CURRENT_TIME	CURRENT_TIMESTAMP	CURRVAL
CURSOR	CYCLE			
D ATA	DAYS	DB2	DBA	DBFUNCTI
DBPROC	DBPROCEDURE	DB_ABOVE_LIMIT	DB_BELOW_LIMIT	DECLARE
DEFAULTCODE	DEGREE	DESC	DESCRIBE	DEVICE
DIAGNOSE	DIMENSION	DISABLE	DIV	DO
DOMAIN	DROP	DSETPASS	DUPLICATES	DYNAMIC
E DITPROC	ELSE	ENABLE	END	ENDLOAD
ENDPROC	ERROR	ESCAPE	ESTIMATE	EUR
EVENT	EXCLUSIVE	EXECUTE	EXPLAIN	EXPLICIT
EXTRACT				
F ACT	FALSE	FETCH	FILE	FLUSH
FORCE	FOREIGN	FORMAT	FREEPAGE	FVERSION
G ET	GRANT			
H IGH	HOLD	HOURS		
I DENTIFIED	IF	IMPLICIT	IN	INCREMEN
INDEXNAME	INDICATOR	INFO	INIT	INITRANS
INOUT	INPROC	INSTANCE	INSTR	IS
ISO	ISOLATION			
J AVA	JIS			
K EEP				
L ABEL	LANGUAGE	LAST_DAY	LEADING	LEVEL
LIKE	LOAD	LOCAL	LOCK	LOGFULL
LOGWRITER	LOG_ABOVE_LIMIT	LOW		
M AXTRANS	MAXVALUE	MEDIANAME	MEDIUM	MICROSEC
MIGRATE	MINUS	MINUTES	MINVALUE	MODE
MODIFY	MONITOR	MONTHS	MONTHS_BETWEEN	
N AME	NEW	NEW_TIME	NEXTVAL	NEXT_DAY
NLSSORT	NLS_DATE_FORMAT	NLS_DATE_LANGUAGE	NLS_LANGUAGE	NLS_SORT
NOCACHE	NOCYCLE	NOLOG	NOMAXVALUE	NOMINVAI
NONE	NOORDER	NOREWIND	NORMAL	NOSORT
NOWAIT	NUMBER	NVL		
O BID	OFF	ONLY	OPEN	OPTIMIST
OPTIMIZE	OPTION	OR	ORACLE	OUT
OUTER	OVERWRITE			

P ACKAGE	PAGE	PAGES	PARAM	PARSE
PARSEID	PASSWORD	PCTFREE	PCTUSED	PERCENT
PING	PIPE	POS	PRECISION	PREPARE
PRIV	PRIVILEGES	PROC	PROCEDURE	PSM
PUBLIC				
Q UICK				
R ANGE	RAW	RAWTOHEX	READ	RECURSIV
REFERENCES	REGISTER	RELEASE	REMOTE	REMOVE
RENAME	RESOURCE	RESTART	RESTORE	RESTRIC
RESUME	RETURN	RETURNS	REUSE	REVOKE
ROLE	ROLLBACK	ROW	ROWNUM	ROWS
S AME	SAMPLE	SAPR3	SAVE	SAVEPOIN
SCHEMA	SECONDS	SEGMENT	SELECTIVITY	SEQUENCE
SERVERDB	SESSION	SHARE	SHUTDOWN	SIMILAR
SOUNDS	SQLID	SQLMODE	STANDARD	STANDBY
START	STARTPOS	STAT	STATE	STOP
STORAGE	SUBPAGES	SUBTRANS	SUSPEND	SWITCH
SYNCHRONIZE	SYNONYM	SYSDATE		
T ABID	TABLESPACE	TAKEOVER	TAPE	TEMP
THEN	TIMEOUT	TOPIC	TO_CHAR	TO_DATE
TO_NUMBER	TRACE	TRAILING	TRIGGER	TRUE
TRY	TYPE			
U NIQUE	UNKNOWN	UNLOAD	UNLOCK	UNTIL
UNUSED	USA	USAGE	USERID	
V ALIDPROC	VARCHAR2	VARYING	VERIFY	VERSION
VIEW	VOLUME	VSIZE	VTRACE	
W AIT	WHENEVER	WHILE	WORK	WRITE
WRITER				
Y EARS				



SYN null_predicate

<null_predicate> ::=
 <expression [Page 27]> IS [NOT] NULL

numeric_literal

```
<numeric_literal> ::=
  <fixed_point_literal [Page 29]>
| <floating_point_literal [Page 30]>
```

object_spec

```
<object_spec> ::=
  COLUMN <table_name [Page 59]>.<column_name [Page 17]>
| DBPROC [EDURE] <dbproc_name [Page 23]>
| DOMAIN <domain_name [Page 25]>
| FOREIGN KEY <table_name>.<referential_constraint_name [Page 47]>
| INDEX <index_name [Page 33]> ON <table_name>
| SEQUENCE <sequence_name [Page 53]>
| [PUBLIC] SYNONYM <synonym_name [Page 58]>
| TABLE <table_name>
| TRIGGER <trigger_name [Page 60]>.<table_name>
| USER <user_name [Page 62]>
| USERGROUP <usergroup_name [Page 62]>
| <parameter_name [Page 43]>
```

old_index_name

```
<old_index_name> ::=
  <index_name [Page 33]>
```

old_table_name

```
<old_table_name> ::=
  <table_name [Page 59]>
```

open_cursor_statement

```
<open_cursor_statement> ::=
  OPEN <result_table_name [Page 50]>
```

order_clause

```
<order_clause> ::=
  ORDER BY <sort_spec [Page 55]> , ...
```

 **outer_join_inidicator**

<[outer_join_inidicator](#)> ::=
(+)

 **owner**

<[owner](#)> ::=
 <[user_name \[Page 62\]](#)>
 | <[usergroup_name \[Page 62\]](#)>
 | TEMP

 **parameter_name**

<[parameter_name](#)> ::=
 :<[identifier \[Page 32\]](#)>
 | :<[identfier](#)>(<[identifier](#)>)
 | :<[identfier](#)>(<[identifier](#)>.)

 **parameter_spec**

<[parameter_spec](#)> ::=
 <[parameter_name \[Page 43\]](#)> [[indicator_name \[Page 33\]](#)>]

 **password**

<[password](#)> ::=
 <[identifier \[Page 32\]](#)>
 | <[first_password_character \[Page 29\]](#)> [<[identifier_tail_character \[Page 32\]](#)>...]

 **pattern_element**

<[pattern_element](#)> ::=
 <[match_string \[Page 38\]](#)>
 | <[match_set \[Page 37\]](#)>

 **position**

<[position](#)> ::=
 POS (<[unsigned_integer \[Page 61\]](#)>)
 | POS (<[parameter_spec \[Page 43\]](#)>)
 | ABSOLUTE <[integer \[Page 34\]](#)>

```
| ABSOLUTE <parameter_spec>
| RELATIVE <integer>
| RELATIVE <parameter_spec>
```

predicate

```
<predicate> ::=
  <between_predicate [Page 15]>
| <bool_predicate [Page 15]>
| <comparison_predicate [Page 18]>
| <default_predicate [Page 23]>
| <exists_predicate [Page 27]>
| <in_predicate [Page 33]>
| <join_predicate [Page 34]>
| <like_predicate [Page 36]>
| <null_predicate [Page 41]>
| <quantified_predicate [Page 45]>
| <rowno_predicate [Page 51]>
| <sound_predicate [Page 55]>
```

priv_spec

```
<priv_spec> ::=
  ALL [PRIV[ILEGES]] ON [TABLE] <table_name [Page 59]>, ...
| <privilege [Page 44]>, ... ON [TABLE] <table_name>, ...
| <role_name [Page 50]>
```

privilege

```
<privilege> ::=
  INSERT
| UPDATE [( <column_name [Page 17]>, ... )]
| SELECT [( <column_name>, ... )]
| SELUPD [( <column_name>, ... )]
| DELETE
| INDEX
| ALTER
| REFERENCES [( <column_name>, ... )]
```

procedure_name

```
<procedure_name> ::=
  <identifier [Page 32]>
```

quantified_predicate

```

<quantified_predicate> ::=
  <expression [Page 27]> <comp_op [Page 18]> <quantifier [Page 45]> <expression_list
[Page 28]>
| <expression> <comp_op> <quantifier> <subquery [Page 58]>
| <expression_list> <equal_or_not [Page 27]> <quantifier>
(<expression_list>,...)
| <expression_list> <equal_or_not> <quantifier> <subquery>

```

quantifier

```

<quantifier> ::=
  ALL
| SOME
| ANY

```

query_expression

```

<query_expression> ::=
  <query_term [Page 46]>
| <query_expression> UNION [ALL] <query_term>
| <query_expression> EXCEPT [ALL] <query_term>

```

query_primary

```

<query_primary> ::=
  <query_spec [Page 45]>
| (<query_expression [Page 45]>)

```

query_spec

```

<query_spec> ::=
  SELECT [<distinct_spec [Page 24]>] <select_column [Page 53]>, ...
<table_expression [Page 59]>

```

query_statement

```

<query_statement> ::=
  <declare_cursor_statement [Page 23]>
| <recursive_declare_cursor_statement [Page 46]>
| <named_select_statement [Page 39]>
| <select_statement [Page 53]>

```

 **query_term**

[<query_term>](#) ::=
 [<query_primary \[Page 45\]>](#)
| [<query_term>](#) INTERSECT [ALL] [<query_primary>](#)

 **recursive_declare_cursor_statement**

[<recursive_declare_cursor_statement>](#) ::=
 DECLARE [<result_table_name \[Page 50\]>](#) CURSOR FOR WITH RECURSIVE
[<reference_name \[Page 46\]>](#)
 ([<alias_name \[Page 13\]>](#), ...) AS ([<initial_select \[Page 33\]>](#) UNION ALL
[<recursive_select \[Page 46\]>](#)) [<final_select \[Page 29\]>](#)

 **recursive_select**

[<recursive_select>](#) ::=
 [<query_spec \[Page 45\]>](#)

 **reference_name**

[<reference_name>](#) ::=
 [<identifier \[Page 32\]>](#)

 **referenced_column**

[<referenced_column>](#) ::=
 [<column_name \[Page 17\]>](#)

 **referenced_table**

[<referenced_table>](#) ::=
 [<table_name \[Page 59\]>](#)

 **referencing_column**

[<referencing_column>](#) ::=
 [<column_name \[Page 17\]>](#)

referential_constraint_definition

```
<referential_constraint_definition> ::=
  FOREIGN KEY [<referential_constraint_name [Page 47]>] (<referencing_column [Page
46]>, ...)
  REFERENCES <referenced_table [Page 46]> [(<referenced_column [Page
46]>, ...) ] [<delete_rule [Page 23]>]
```

referential_constraint_name

```
<referential_constraint_name> ::=
  <identifier [Page 32]>
```

regular_token

```
<regular_token> ::=
  <literal [Page 36]>
  | <key_word [Page 35]>
  | <identifier [Page 32]>
  | <parameter_name [Page 43]>
```

release_statement

```
<release_statement> ::=
  COMMIT [WORK] RELEASE
  | ROLLBACK [WORK] RELEASE
```

rename_column_statement

```
<rename_column_statement> ::=
  RENAME COLUMN <table_name [Page 59]>.<column_name [Page 17]> TO
  <column_name>
```

rename_index_statement

```
<rename_index_statement> ::=
  RENAME INDEX <old_index_name [Page 42]> [ON <table_name [Page 59]>] TO
  <new_index_name [Page 39]>
```

rename_synonym_statement

```
<rename_synonym_statement> ::=
  RENAME [PUBLIC] SYNONYM <old_synonym_name [Page 58]> TO
  <new_synonym_name>
```

rename_table_statement

```
<rename_table_statement> ::=
  RENAME TABLE <old_table_name [Page 42]> TO <new_table_name [Page 39]>
```

rename_user_statement

```
<rename_user_statement> ::=
  RENAME USER <user_name [Page 62]> TO <new_user_name [Page 62]>
```

rename_usergroup_statement

```
<rename_usergroup_statement> ::=
  RENAME USERGROUP <usergroup_name [Page 62]> TO <new_usergroup_name [Page
  62]>
```

rename_view_statement

```
<rename_view_statement> ::=
  RENAME VIEW <old_table_name [Page 42]> TO <new_table_name [Page 39]>
```

reserved_key_word

```
<reserved_key_word> ::=
```

ABS	ABSOLUTE	ACOS	ADDDATE	ADDTIME
ALL	ALPHA	ALTER	ANY	ASCII
ASIN	ATAN	ATAN2	AVG	
BINARY	BIT	BOOLEAN	BYTE	
CASE	CEIL	CEILING	CHAR	CHARACTER
CHECK	CHR	COLUMN	CONCAT	CONSTRAINT
COS	COSH	COT	COUNT	CROSS
CURDATE	CURRENT	CURTIME		
DATABASE	DATE	DATEDIFF	DAY	DAYNAME

DAYOFMONTH	DAYOFWEEK	DAYOFYEAR	DBYTE	DEC
DECIMAL	DECODE	DEFAULT	DEGREES	DELETE
DIGITS	DISTINCT	DOUBLE		
EBCDIC	EXCEPT	EXISTS	EXP	EXPAND
FIRST	FIXED	FLOAT	FLOOR	FOR
FROM	FULL			
GET_OBJECTNAME	GET_OWNER	GRAPHIC	GREATEST	GROUP
HAVING	HEX	HEXTORAW	HOURL	
IFNULL	IGNORE	INDEX	INITCAP	INNER
INSERT	INT	INTEGER	INTERNAL	INTERSECT
INTO				
JOIN				
KEY				
LAST	LCASE	LEAST	LEFT	LENGTH
LFILL	LINK	LIST	LN	LOCATE
LOG	LOG10	LONG	LONGFILE	LOWER
LPAD	LTRIM			
MAKEDATE	MAKETIME	MAPCHAR	MAX	MBCS
MICROSECOND	MIN	MINUTE	MOD	MONTH
MONTHNAME				
NATURAL	NCHAR	NEXT	NO	NOROUND
NOT	NOW	NULL	NUM	NUMERIC
OBJECT	OF	ON	ORDER	
PACKED	PI	POWER	PREV	PRIMARY
RADIANS	REAL	REJECT	RELATIVE	REPLACE
RFILL	RIGHT	ROUND	ROWID	ROWNO
RPAD	RTRIM			
SECOND	SELECT	SELUPD	SERIAL	SET
SHOW	SIGN	SIN	SINH	SMALLINT
SOME	SOUNDEX	SPACE	SQRT	STAMP
STATISTICS	STDDEV	SUBDATE	SUBSTR	SUBSTRING
SUBTIME	SUM	SYSDBA		
TABLE	TAN	TANH	TIME	TIMEDIFF
TIMESTAMP	TIMEZONE	TO	TOIDENTIFIER	TRANSACTION
TRANSLATE	TRIM	TRUNC	TRUNCATE	
UCASE	UID	UNICODE	UNION	UPDATE
UPPER	USER	USERGROUP	USING	UTCDATE
UTCDIFF				

V ALUE	VALUES	VARCHAR	VARGRAPHIC	VARIANCE
W EEK	WEEKOFYEAR	WHEN	WHERE	WITH
Y EAR				
Z ONED				

result_column_name

<result_column_name> ::=
 <identifier [Page 32]>

result_table_name

<result_table_name> ::=
 <identifier [Page 32]>

revoke_statement

<revoke_statement> ::=
 REVOKE <priv_spec [Page 44]>, ... FROM <grantee [Page 31]>, ...
 [<cascade_option [Page 16]>]
 | REVOKE EXECUTE ON <dbproc_name [Page 23]> FROM <grantee>, ...
 | REVOKE SELECT ON <sequence_name [Page 53]> FROM <grantee>, ...
 [<cascade_option>]

role_name

<role_name> ::=
 <identifier [Page 32]>

rollback_statement

<rollback_statement> ::=
 ROLLBACK [WORK]

routine

<routine> ::=
 [<local_variables [Page 36]>] <statement_list [Page 57]>;

routine_sql_statement

```
<routine_sql_statement> ::=
  <call_statement [Page 15]>
| <close_statement [Page 16]>
| <create_table_temp [Page 21]>
| <declare_cursor_statement [Page 23]>
| <delete_statement [Page 24]>
| <fetch_statement [Page 29]>
| <insert_statement [Page 34]>
| <lock_statement [Page 37]>
| <select_statement [Page 53]>
| <named_select_statement [Page 39]>
| <single_select_statement [Page 55]>
| <subtrans_statement [Page 58]>
| <update_statement [Page 61]>
```

row_spec

```
<row_spec> ::=
  ROW <table_name [Page 59]> KEY <key_spec [Page 35]>, ...
| ROW <table_name> CURRENT OF <result_table_name [Page 50]>
```

rowno_column

```
<rowno_column> ::=
  ROWNO [<result_column_name [Page 50]>]
| <result_column_name> = ROWNO
```

rowno_predicate

```
<rowno_predicate> ::=
  ROWNO < <unsigned_integer [Page 61]>
| ROWNO < <parameter_spec [Page 43]>
| ROWNO <= <unsigned_integer [Page 61]>
| ROWNO <= <parameter_spec [Page 43]>
```

sample_definition

```
<sample_definition> ::=
  SAMPLE <unsigned_integer [Page 61]> ROWS
| SAMPLE <unsigned_integer> PERCENT
```

scalar_subquery

<scalar_subquery> ::=
 <subquery [Page 58]>

search_and_result_spec

<search_and_result_spec> ::=
 <search_expression [Page 27]>, <result_expression>

search_condition

<search_condition> ::=
 <boolean_term [Page 15]>
 | <search_condition> OR <boolean_term>

searched_case_function

<searched_case_function> ::=
 WHEN <search_condition [Page 52]> THEN <result_expression [Page 27]>
 [...]
 [ELSE <default_expression>]
 END

searched_case_statement

<searched_case_statement> ::=
 CASE
 <searched_case_when_clause [Page 52]>...
 [<case_else_clause [Page 16]>]
 END [CASE]

searched_case_when_clause

<searched_case_when_clause> ::=
 WHEN <search_condition [Page 52]> THEN <statement [Page 56]>

seconds

<seconds> ::=
 <expression [Page 27]>

select_column

```
<select_column> ::=
  <table_columns [Page 58]>
  | <derived_column [Page 24]>
  | <rowno_column [Page 51]>
  | <stamp_column [Page 56]>
```

select_statement

```
<select_statement> ::=
  <query_expression [Page 45]> [ <order_clause [Page 42]> ] [ <update_clause [Page
61]> ] [ <lock_option [Page 36]> ]
  [FOR REUSE]
```

sequence_name

```
<sequence_name> ::=
  <identifier [Page 32]>
```

set_function_name

```
<set_function_name> ::=
  COUNT
  | MAX
  | MIN
  | SUM
  | AVG
  | STDDEV
  | VARIANCE
```

set_function_spec

```
<set_function_spec> ::=
  COUNT (*)
  | <distinct_function [Page 24]>
  | <all_function [Page 13]>
```

set_insert_clause

```
<set_insert_clause> ::=
  <column_name [Page 17]> = <extended_value_spec [Page 28]>
```

set_statement

```
<set_statement> ::=
  SET ROLE ALL [EXCEPT <role_name [Page 50]>]
| SET ROLE NONE
| SET ROLE <role_name> [IDENTIFIED BY <password [Page 43]>]
| SET ISOLATION LEVEL <unsigned_integer [Page 61]>
```

set_update_clause

```
<set_update_clause> ::=
  <column_name [Page 17]> = <extended_expression [Page 28]>
| <column_name>, ... = (<extended_expression>, ...)
| (<column_name>, ...) = (<extended_expression>, ...)
| <column_name> = <subquery [Page 58]>
| (<column_name>, ...) = <subquery>
```

sign

```
<sign> ::=
  +
| -
```

simple_case_function

```
<simple_case_function> ::=
  CASE <check_expression [Page 27]>,
    WHEN <search_expression> THEN <result_expression>
    [...]
    [ELSE <default_expression>]
  END
```

simple_case_statement

```
<simple_case_statement> ::=
  CASE <expression [Page 27]>
    <simple_case_when_clause [Page 55]>...
    [<case_else_clause [Page 16]>]
  END [CASE]
```

simple_case_when_clause

[<simple_case_when_clause>](#) ::=
 WHEN [<literal \[Page 36\]>](#) [, ...] THEN [<statement \[Page 56\]>](#)

simple_identifier

[<simple_identifier>](#) ::=
[<first_character \[Page 29\]>](#) [[<identifier_tail_character \[Page 32\]>](#) ...]

single_select_statement

[<single_select_statement>](#) ::=
 SELECT [[<distinct_spec \[Page 24\]>](#)] [<select_column \[Page 53\]>](#), ... INTO
[<parameter_spec \[Page 43\]>](#), ...
 FROM [<from_table_spec \[Page 30\]>](#), ... [[<where_clause \[Page 63\]>](#)]
 [[<group_clause \[Page 31\]>](#)]
 [[<having_clause \[Page 32\]>](#)] [[<lock_option \[Page 36\]>](#)]

sort_spec

[<sort_spec>](#) ::=
[<unsigned_integer \[Page 61\]>](#) [ASC | DESC]
 | [<expression \[Page 27\]>](#) [ASC | DESC]

sound_predicate

[<sound_predicate>](#) ::=
[<expression \[Page 27\]>](#) [NOT] SOUNDS [LIKE] [<expression>](#)

source_user

[<source_user>](#) ::=
[<user_name \[Page 62\]>](#)

special_character

[<special_character>](#) ::=
 every character except
[<digit \[Page 24\]>](#)
 | [<letter \[Page 35\]>](#)

```

| <extended letter \[Page 28\]>
| <hex digit \[Page 32\]>
| <language specific character \[Page 35\]>
| <character for the end of a line in a file>

```

special_function

```

<special\_function> ::=
  VALUE (<expression \[Page 27\]>, <expression>, ...)
| GREATEST (<expression>, <expression>, ...)
| LEAST (<expression>, <expression>, ...)
| DECODE (<check_ expression \[Page 27\]>, <search and result spec \[Page 52\]>, ... [, <default_expression>])
| case function \[Page 16\]

```

special_identifier

```

<special\_identifier> ::=
  <special\_identifier character \[Page 56\]>...

```

special_identifier_character

```

<special\_identifier character> ::=
  any character.

```

sql_comment

```

<sql\_comment> ::=
  /*<comment text>*/
| --<comment text>

```

stamp_column

```

<stamp\_column> ::=
  STAMP [<result\_column\_name \[Page 50\]>]
| <result_column_name> = STAMP

```

statement

```

<statement> ::=
  BEGIN <statement\_list \[Page 57\]> END
| BREAK
| CONTINUE

```

```

| CONTINUE EXECUTION
| <if_statement [Page 33]>
| <while_statement [Page 63]>
| <assignment_statement [Page 15]>
| <case_statement [Page 16]>
| RETURN
| STOP (<expression [Page 27]> [, <expression>] )
| TRY <statement_list>; CATCH <statement>
| <routine_sql_statement [Page 51]>

```

statement_list

```

<statement_list> ::=
  <statement [Page 56]>
| <statement_list> ; <statement>

```

string_function

```

<string_function> ::=
  <string_spec [Page 58]> || <string_spec>
| <string_spec> & <string_spec>
| SUBSTR (<string_spec>, <expression [Page 27]> [, <expression>])
| LFPILL (<string_spec>, <string_literal [Page 57]> [, <unsigned_integer [Page 61]>])
| RFPILL (<string_spec>, <string_literal> [, <unsigned_integer>])
| LPAD
(<string_spec>, <expression>, <string_literal> [, <unsigned_integer>])
| RPAD
(<string_spec>, <expression>, <string_literal> [, <unsigned_integer>])
| TRIM (<string_spec> [, <string_spec>])
| LTRIM (<string_spec> [, <string_spec>])
| RTRIM (<string_spec> [, <string_spec>])
| EXPAND (<string_spec>, <unsigned_integer>)
| UPPER (<string_spec>)
| LOWER (<string_spec>)
| INITCAP (<string_spec>)
| REPLACE (<string_spec>, <string_spec> [, <string_spec>])
| TRANSLATE (<string_spec>, <string_spec>, <string_spec>)
| MAPCHAR (<string_spec> [, <unsigned_integer>] [, <mapchar_set_name [Page
37]>])
| ALPHA (<string_spec> [, <unsigned_integer>])
| ASCII (<string_spec>)
| EBCDIC (<string_spec>)
| SOUNDEX (<string_spec>)
| GET_OBJECTNAME (<string_literal>)
| GET_OWNER (<string_literal>)

```

string_literal

```

<string_literal> ::=
  ''

```

| '<[character \[Page 16\]](#)>...'
| <[hex_literal \[Page 32\]](#)>

string_spec

<[string_spec](#)> ::=
 <[expression \[Page 27\]](#)>

subquery

<[subquery](#)> ::=
 (<[query_expression \[Page 45\]](#)>)

subtrans_statement

<[subtrans_statement](#)> ::=
 SUBTRANS BEGIN
 | SUBTRANS END
 | SUBTRANS ROLLBACK

synonym_name

<[synonym_name](#)> ::=
 <[identifier \[Page 32\]](#)>

table_columns

<[table_columns](#)> ::=
 *
 | <[table_name \[Page 59\]](#)>.*
 | <[reference_name \[Page 46\]](#)>.*

table_description_element

<[table_description_element](#)> ::=
 <[column_definition \[Page 17\]](#)>
 | <[constraint_definition \[Page 19\]](#)>
 | <[referential_constraint_definition \[Page 47\]](#)>
 | <[key_definition \[Page 34\]](#)>
 | <[unique_definition \[Page 60\]](#)>

table_expression

```
<table_expression> ::=
  <from_clause [Page 30]> [<where_clause [Page 63]>] [<group_clause [Page 31]>]
  [<having_clause [Page 32]>]
```

table_name

```
<table_name> ::=
  [<owner [Page 43]>.]<identifier [Page 32]>
```

term

```
<term> ::=
  <factor [Page 28]>
  | <term> * <factor>
  | <term> / <factor>
  | <term> DIV <factor>
  | <term> MOD <factor>
```

time_expression

```
<time_expression> ::=
  <expression [Page 27]>
```

time_or_timestamp_expression

```
<time_or_timestamp_expression> ::=
  <expression [Page 27]>
```

time_function

```
<time_function> ::=
  ADDTIME ( <time_or_timestamp_expression [Page 59]>, <time_expression [Page 59]>
  )
  | SUBTIME ( <time_or_timestamp_expression>, <time_expression> )
  | TIMEDIFF ( <time_or_timestamp_expression>,
  <time_or_timestamp_expression> )
  | MAKETIME ( <hours [Page 32]>, <minutes [Page 38]>, <seconds [Page 52]> )
```

trigger_event

```
<trigger_event> ::=
  INSERT
| UPDATE [ (<column_list [Page 17]> ) ]
| DELETE
```

trigger_name

```
<trigger_name> ::=
  <identifier [Page 32]>
```

trigonometric_function

```
<trigonometric_function> ::=
  COS ( <expression [Page 27]> )
| SIN ( <expression> )
| TAN ( <expression> )
| COT ( <expression> )
| COSH ( <expression> )
| SINH ( <expression> )
| TANH ( <expression> )
| ACOS ( <expression> )
| ASIN ( <expression> )
| ATAN ( <expression> )
| ATAN2 ( <expression>, <expression> )
| RADIANS ( <expression> )
| DEGREES ( <expression> )
```

underscore

```
<underscore> ::=
  -
```

unique_definition

```
<unique_definition> ::=
  [CONSTRAINT <index_name [Page 33]>] UNIQUE ( <column_name [Page 17]>, ... )
```

unlock_statement

```
<unlock_statement> ::=
  UNLOCK <row_spec [Page 51]>... IN SHARE MODE
| UNLOCK <row_spec>... IN EXCLUSIVE MODE
```

```
| UNLOCK <row_spec>... IN SHARE MODE <row_spec>... IN EXCLUSIVE MODE
| UNLOCK <row_spec>... OPTIMISTIC
```

unsigned_integer

```
<unsigned_integer> ::=
  <numeric_literal [Page 42]>
```

update_clause

```
<update_clause> ::=
  FOR UPDATE [OF <column_name [Page 17]>, ...] [NOWAIT]
```

update_statement

```
<update_statement> ::=
  UPDATE [OF] <table_name [Page 59]> [<reference_name [Page 46]>] SET
  <set_update_clause [Page 54]>, ...
  [KEY <key_spec [Page 35]>, ...] [WHERE <search_condition [Page 52]>]
| UPDATE [OF] <table_name> [<reference_name>] (<column_name [Page
17]>, ...)
  VALUES (<extended_value_spec [Page 28]>, ...) [KEY <key_spec>, ...]
  [WHERE <search_condition>]
| UPDATE [OF] <table_name> [<reference_name>] SET
  <set_update_clause>, ...
  WHERE CURRENT OF <result_table_name [Page 50]>
| UPDATE [OF] <table_name> [<reference_name>] (<column_name>, ...)
  VALUES (<extended_value_spec>, ...) WHERE CURRENT OF
  <result_table_name>
```

update_statistics_statement

```
<update_statistics_statement> ::=
  UPDATE STAT[ISTICS] COLUMN <table_name [Page 59]>.<column_name [Page 17]>
  [ESTIMATE [<sample_definition [Page 51]>]]
| UPDATE STAT[ISTICS] COLUMN (<column_name>, ...) FOR <table_name>
  [ESTIMATE [<sample_definition>]]
| UPDATE STAT[ISTICS] COLUMN (*) FOR <table_name>
  [ESTIMATE [<sample_definition>]]
| UPDATE STAT[ISTICS] <table_name> [ESTIMATE [<sample_definition>]]
| UPDATE STAT[ISTICS] [<owner [Page 43]>]. [<identifier [Page 32]>]* [ESTIMATE
  [<sample_definition>]]
```

user_mode

```
<user_mode> ::=
  DBA
| RESOURCE
| STANDARD
```

user_name

```
<user_name> ::=
  <identifier [Page 32]>
```

usergroup_mode

```
<usergroup_mode> ::=
  RESOURCE
| STANDARD
```

usergroup_name

```
<usergroup_name> ::=
  <identifier [Page 32]>
```

value_spec

```
<value_spec> ::=
  <literal [Page 36]>
| <parameter_spec [Page 43]>
| NULL
| USER
| USERGROUP
| SYSDBA
| UID
| [<owner [Page 43]>.<sequence_name [Page 53]>].NEXTVAL
| [<owner>.<sequence_name>].CURRVAL
| <table_name [Page 59]> .CURRVAL
| DATE
| TIME
| TIMESTAMP
| UTCDATE
| TIMEZONE
| UTCDIFF
| TRUE
| FALSE
| TRANSACTION
```

 **variable_name**

<variable_name> ::=
 <identifier [Page 32]>

 **where_clause**

<where_clause> ::=
 WHERE <search_condition [Page 52]>

 **while_statement**

<while_statement> ::=
 WHILE <search_condition [Page 52]> DO <statement [Page 56]>