

## numeric

<b>TINYINT</b> [(digits)] [unsigned zerofill]	256
<b>BIT,BOOL,BOOLEAN</b>	synonyms for tinyint(1)
<b>SMALLINT</b> [(digits)] [unsigned zerofill]	65,536
<b>MEDIUMINT</b> [(digits)] [unsigned zerofill]	16,777,216
<b>INT,INTEGER</b> [(digits)] [unsigned zerofill]	4,294,967,296
<b>BIGINT</b> [(digits)] [unsigned zerofill]	18,446,744,073,709,551,616
<b>FLOAT</b> [(digits, digits after decimal)] [unsigned zerofill]	23 digits
<b>DOUBLE</b> [(digits, digits after decimal)] [unsigned zerofill]	24...53 digits
<b>DECIMAL</b> [(digits, digits after decimal)] [unsigned zerofill]	a type of DOUBLE stored as a string

## strings

<b>CHAR</b> [(length)]	0...255 – fixed length, right-padded with spaces
<b>VARCHAR</b> [(length)]	0...255 – variable length (trailing spaces removed)
<b>BINARY,VARBINARY</b> [(length)]	0...255 – stores bytes instead of character strings
<b>TINYTEXT TINYBLOB</b>	0...255 – text stores strings, blob stores bytes
<b>TEXT BLOB</b>	0...65,535 – text stores strings, blob stores bytes
<b>MEDIUMTEXT MEDIUMBLOB</b>	0...16,777,215 – text stores strings, blob stores bytes
<b>LONGTEXT LONGBLOB</b>	0...4,294,967,295 – text stores strings, blob stores bytes
<b>ENUM</b> ('value1','value2',...)	list of up to 65,535 members, can have only one value
<b>SET</b> ('value1','value2',...)	list of up to 64 members, can have zero or more values

**REGEXP** 'expression'

## date & time

<b>DATE</b>	'YYYY-MM-DD'
<b>DATETIME</b>	'YYYY-MM-DD HH:MM:SS'
<b>TIMESTAMP</b> [(display width)]	'YYYY-MM-DD HH:MM:SS' – display widths: 6, 8, 12 or 14
<b>TIME</b>	'HH:MM:SS'
<b>YEAR</b> [(2 4)]	'YYYY' – a year in 2-digit or 4-digit format

## commands

### connecting to a database

# mysql [-h hostname] [-u username] [-ppassword] [dbname]

### importing data

# mysql dbname < dbdumpfile.sql

### backup a database

# mysqldump [-options] dbname [> dumpfile.sql]

## functions

<b>ABS</b> (X)	<b>SIGN</b> (X)
<b>FLOOR</b> (X)	<b>CEILING</b> (X)
<b>ROUND</b> (X[,D])	<b>EXP</b> (X)
<b>DIV</b> (X)	<b>MOD</b> (N,M)
<b>POW</b> (X,Y)	<b>POWER</b> (X,Y)
<b>SQRT</b> (X)	<b>RAND</b> [(seed)]
<b>PI</b> ()	<b>DEGREES</b> (X)
<b>RADIANS</b> (X)	<b>COT</b> (X)
<b>COS</b> (X)	<b>ACOS</b> (X)
<b>SIN</b> (X)	<b>ASIN</b> (X)
<b>TAN</b> (X) <b>ATAN</b> (X)	<b>ATAN2</b> (X)
<b>LOG</b> (X), <b>LOG2</b> (X), <b>LOG10</b> (X)	<b>LN</b> (X)
<b>TRUNCATE</b> (X, D)	



## functions

<b>ASCII</b> ('str')	<b>CONV</b> (number,from_base,to_base)	<b>BIN</b> (num), <b>OCT</b> (num), <b>HEX</b> (num)
<b>ORD</b> ('str')	<b>CHAR</b> (number[ USING charset],...)	<b>CONCAT</b> ('str1','str1',...)
<b>LENGTH</b> ('str')	<b>CHAR_LENGTH</b> ('str')	<b>CONCAT_WS</b> ('separator','str1','str2')
<b>BIT_LENGTH</b> ('str')	<b>REVERSE</b> ('str')	<b>SOUNDEX</b> ('str')
<b>LCASE</b> ('str')	<b>UCASE</b> ('str')	<b>QUOTE</b> ('str')
<b>LPAD</b> ('str',len,'padstr')	<b>RPAD</b> ('str',len,'padstr')	<b>ELT</b> (number,'str1','str2','str3',...)
<b>LEFT</b> ('str',length)	<b>RIGHT</b> ('str',length)	<b>FIELD</b> ('str','str1','str2','str3',...)
<b>LTRIM</b> ('str')	<b>RTRIM</b> ('str') <b>TRIM</b> ('str')	<b>LOAD_FILE</b> ('filename')
<b>SPACE</b> (count)	<b>REPEAT</b> ('str',count)	<b>SUBSTRING</b> ('str',pos[,length])
<b>REPLACE</b> ('str','from','to')	<b>INSERT</b> ('str',pos,length,'newstr')	<b>SUBSTRING_INDEX</b> ('str','del',count)
<b>INSTR</b> ('str','substr')	<b>LOCATE</b> ('substr','str',[,pos])	<b>STRCMP</b> ('str1','str2')

## functions

<b>WEEK</b> ('date',[,mode])	<b>WEEKDAY</b> ('date')	<b>DAYOFWEEK</b> ('date')
<b>DAYOFYEAR</b> ('date')	<b>MONTH</b> ('date')	<b>MONTHNAME</b> ('date')
<b>QUARTER</b> ('date')	<b>YEAR</b> ('date')	<b>YEARWEEK</b> ('date',[,mode])
<b>hour</b> ('date')	<b>MINUTE</b> ('date')	<b>SECOND</b> ('date')
<b>TO_DAYS</b> ('date')	<b>FROM_DAYS</b> (number)	<b>LAST_DAY</b> ('date')
<b>SEC_TO_TIME</b> (seconds)	<b>TIME_TO_SEC</b> ('time')	<b>SYSDATE</b> ()
<b>CURTIME</b> () <b>,CURRENT_TIME</b> () <b>,CURRENT_TIME</b>	<b>TIME_FORMAT</b> ('date','format')	
<b>CURDATE</b> () <b>,CURRENT_DATE</b> () <b>,CURRENT_DATE</b>	<b>DATE_FORMAT</b> ('date','format')	
<b>NOW</b> () <b>,CURRENT_TIMESTAMP</b> () <b>,CURRENT_TIMESTAMP</b> <b>,LOCALTIME</b> () <b>,LOCALTIME</b>		
<b>UNIX_TIMESTAMP</b> ('date')	<b>FROM_UNIXTIME</b> ('unix_timestamp',[,format])	
<b>PERIOD_ADD</b> ('period',num)	<b>PERIOD_DIFF</b> ('period',num)	<b>EXTRACT</b> (unit FROM 'date')
<b>ADDDATE</b> ('date',days)   <b>ADDDATE</b> ('date',INTERVAL expr unit) <b>,DATE_ADD</b> ('date',INTERVAL expr unit)		
<b>SUBDATE</b> ('date',days)   <b>SUBDATE</b> ('date',INTERVAL expr unit) <b>,DATE_SUB</b> ('date',INTERVAL expr unit)		

# syntax & examples

## Create a database

```
mysql> CREATE DATABASE dbname;
```

## Select a database

```
mysql> USE dbname;
```

## Delete a database

```
mysql> DROP DATABASE dbname;
```

## Add a user to a database

```
mysql> GRANT ALL [PRIVILEGES] ON database.* TO [username]@[hostname] [IDENTIFIED BY 'password'];
```

## List tables in a database

```
mysql> SHOW TABLES;
```

## Show table format

```
mysql> DESCRIBE table;
```

## Delete records in a table

```
mysql> DELETE FROM TABLE table [WHERE conditions];
```

## Create a table

```
mysql> CREATE TABLE table (column definition,...) [options...];
```

## Change a column definition in a table

```
mysql> ALTER TABLE table CHANGE column definition;
```

## Change auto\_increment value

```
mysql> ALTER TABLE table AUTO_INCREMENT=value;
```

## Add a new record

```
mysql> INSERT table (column1, column2,...) VALUES (expr1, expr2...);
```

## Update a record in a single table

```
mysql> UPDATE table SET column=expr[, column=expr...] [WHERE conditions] [ORDER BY ...] [LIMIT count]
```

## Retrieve information from a table

```
mysql> SELECT [*]expr[column,...] [FROM table,...] [WHERE conditions] [GROUP BY ...] [HAVING conditions] [ORDER BY ...] [LIMIT count]
```

## miscellaneous functions

<b>DATABASE()</b>	<b>VERSION()</b>	<b>CONNECTION_ID()</b>
<b>USER()</b>	<b>CURRENT_USER()</b>	<b>PASSWORD('string')</b>
<b>FOUND_ROWS()</b>	<b>ROW_COUNT()</b>	<b>LAST_INSERT_ID(expr)</b>
<b>BIT_COUNT(number)</b>	<b>FORMAT(number,digits)</b>	<b>BENCHMARK(count, expr)</b>
<b>CAST(expr AS type)</b>	<b>CONVERT(expr, type)</b>	<b>CHARSET('str')</b>
<b>INET_NTOA(expr)</b>	<b>INET_ATON(expr)</b>	<b>LEAST(val1,val2,...)</b>
<b>GET_LOCK('lock',timeout)</b>	<b>RELEASE_LOCK('lock')</b>	<b>GREATEST(val1,val2,...)</b>
<b>ENCRYPT('str','salt')</b>	<b>DECODE('crypt','pass')</b>	<b>ENCODE('str','password')</b>
<b>MD5('string')</b>	<b>SHA1('string')</b>	<b>AES_ENCRYPT('str','key')</b>
<b>COMPRESS('string')</b>	<b>UNCOMPRESS('string')</b>	<b>AES_DECRYPT('str','key')</b>
<b>DES_ENCRYPT('str',[keynum keystr])</b>		<b>DES_DECRYPT('string','key')</b>

## grouping functions

<b>AVG(expr)</b>	<b>SUM(expr)</b>
<b>MIN(expr)</b>	<b>MAX(expr)</b>
<b>VARIANCE(expr)</b>	<b>STD(expr)</b>
<b>BIT_AND(expr)</b>	<b>BIT_OR(expr)</b>
<b>COUNT(expr)</b>	
<b>COUNT(DISTINCT expr, expr...)</b>	
<b>GROUP_CONCAT(expr)</b>	
<b>GROUP_CONCAT([DISTINCT] expr[, expr...] [ORDER BY {int column}expr] [ASC   DESC] [, column ...] [SEPARATOR 'string'])</b>	

## operators

<b>AND, &amp;&amp;</b>	Logical AND
<b>  , OR</b>	Logical OR
<b>XOR</b>	Logical XOR
<b>BINARY</b>	Cast a string to binary string
<b>&amp;</b>	Bitwise AND
<b> </b>	Bitwise OR
<b>^</b>	Bitwise XOR
<b>&lt;&lt;</b>	Left shift
<b>&gt;&gt;</b>	Right shift
<b>-</b>	Invert bits
<b>-</b>	Change sign of value
<b>-</b>	Minus
<b>+</b>	Addition
<b>*</b>	Multiplication
<b>%</b>	Modulo
<b>DIV, /</b>	Integer division, division
<b>&lt;=&gt;</b>	NULL-safe equal to
<b>=</b>	Equal operator
<b>&gt;=</b>	Greater than or equal to
<b>&gt;</b>	Greater than
<b>&lt;=</b>	Less than or equal to
<b>&lt;</b>	Less than
<b>IS</b>	Boolean test
<b>LIKE</b>	Simple pattern matching
<b>!=, &lt;&gt;</b>	Not equal to
<b>NOT LIKE</b>	Negative simple match
<b>NOT REGEXP</b>	Negative regular expression
<b>NOT, !</b>	Negates value
<b>REGEXP</b>	Match on regular expression
<b>RLIKE</b>	Synonym for REGEXP
<b>SOUNDS LIKE</b>	Compare sounds

## control flow

```
IF(expression,true_result,false_result)  
IFNULL(expression,result)  
NULLIF(expression1,expression2)  
CASE [value] WHEN [comparison] THEN [result]  
[WHEN [comparison] THEN result...]  
[ELSE result] END
```