

	esempio	valore minimo	valore massimo	occupazione (byte)
1) DATE	'2023-11-07'	'1000-01-01'	'9999-12-31'	3
2) TIME	'22:15:41'	'-838:59:59'	'838:59:59'	3
3) DATETIME	'2023-11-07 22:15:41'	'1000-01-01 00:00:00'	'9999-12-31 23:59:59'	5
4) TIMESTAMP	'2023-11-07 21:15:41' UTC	'1970-01-01 00:00:01' UTC	'2038-01-19 03:14:07' UTC	4

1) Campi tipo DATE

```
SELECT *
FROM orders -- formato 'YYYY-MM-DD'
WHERE requiredDate >= '2003-10-01' AND requiredDate <= '2003-10-11'
```

```
WHERE requiredDate BETWEEN '2003-10-01' AND '2003-10-11' (OPPURE)
```

```
WHERE requiredDate IN ('2003-10-01' , '2003-10-11') (OPPURE)
```

orderNumber	orderDate	requiredDate	shippedDate	status	comments
10152	2003-09-25	2003-10-03	2003-10-01	Shipped	NULL
10153	2003-09-28	2003-10-05	2003-10-03	Shipped	NULL

```
SELECT orderNumber, customerNumber, requiredDate,
       DAY (requiredDate) AS gg,
       MONTH (requiredDate) AS mm,
       YEAR (requiredDate) AS anno,
       QUARTER (requiredDate) AS trim
```

QUARTER : trimestre

```
FROM orders
WHERE requiredDate >= '2003-09-27'
AND requiredDate <= '2003-10-05'
```

orderNumber	customerNumber	requiredDate	gg	mm	anno	trim
10150	148	2003-09-27	27	9	2003	3
10151	311	2003-09-30	30	9	2003	3
10152	333	2003-10-03	3	10	2003	4
10153	141	2003-10-05	5	10	2003	4

```
SELECT orderNumber,
       orderdate, shippedDate,
       DATEDIFF (shippedDate , orderdate) AS ggCons
FROM orders
WHERE requiredDate >= '2003-09-27'
AND requiredDate <= '2003-10-05'
```

orderNumber	orderdate	shippedDate	ggCons
10150	2003-09-19	2003-09-21	2
10151	2003-09-21	2003-09-24	3
10152	2003-09-25	2003-10-01	6
10153	2003-09-28	2003-10-03	5

```
SELECT ADDDATE ('2023-03-31', INTERVAL 1 WEEK) AS piu1sett,
       ADDDATE ('2023-03-31', INTERVAL 1 MONTH) AS piu1mese,
       ADDDATE ('2023-03-31', INTERVAL 2 QUARTER) AS piu2trim,
       SUBDATE ('2023-03-31', INTERVAL 1 MONTH) AS meno1mese,
       SUBDATE ('2023-02-28', INTERVAL 28 DAY) AS meno28gg,
       SUBDATE ('2023-03-31', INTERVAL 2 YEAR) AS meno2anni
```

piu1sett	piu1mese	piu2trim	meno1mese	meno28gg	meno2anni
2023-04-07	2023-04-30	2023-09-30	2023-02-28	2023-01-31	2021-03-31

2) Campi tipo TIME

ora corrente: SELECT **CURTIME()**;

data corrente: SELECT **CURDATE()**;

```
SELECT   CURTIME(),
         HOUR (CURTIME ()) AS hh,
         MINUTE (CURTIME ()) AS mm,
         SECOND (CURTIME ()) AS ss;
```

CURTIME()	hh	mm	ss
23:30:29	23	30	29

```
SELECT   TIMEDIFF ('13:10:11 ' , '08:16:42 ') AS diff;
```

diff
04:53:29

```
SELECT   TIMEDIFF ('08:16:42 ' , '13:10:11 ') AS diff;
```

diff
-04:53:29

```
SELECT   ADDTIME ('08:15:30' , 121020) AS piu12hh,
         ADDTIME ('18:10:11' , 083019) AS piu8hh,
         SUBTIME ('08:10:20' , 093030) AS meno9hh;
```

piu12hh	piu8hh	meno9hh
20:25:50	26:40:30	-01:20:10

ATTENZIONE : TIME ammette valori da -838 a +838 ore pertanto ADDTIME e SUBTIME possono restituire valori negativi o superiori alle 24 ore

3) Campi tipo DATETIME / TIMESTAMP

data-ora corrente: SELECT **CURRENT_TIMESTAMP()**;

si possono usare tutte le funzioni precedenti per estrarre i singoli campi di un DATETIME; esempio:

```
SELECT   DAY (CURRENT_TIMESTAMP ()) AS gg,
         HOUR (CURRENT_TIMESTAMP ()) AS hh,
         SECOND (CURRENT_TIMESTAMP ()) AS sec;
```

gg	hh	sec
3	12	31

Si possono usare anche le funzioni **DATE_ADD** e **DATE_SUB** :

```
SELECT   CURRENT_TIMESTAMP()       AS dataOra,
         DATE_ADD (CURRENT_TIMESTAMP (), INTERVAL 1 MONTH) AS piu1mese,
         DATE_ADD (CURRENT_TIMESTAMP (), INTERVAL 8 HOUR) AS piu8hh,
         DATE_SUB (CURRENT_TIMESTAMP (), INTERVAL 20 HOUR) AS meno20hh,
         DATE_SUB (CURRENT_TIMESTAMP (), INTERVAL 2 SECOND) AS meno2sec;
```

dataOra	piu1mese	piu8hh	meno20hh	meno2sec
2023-12-04 16:38:29	2024-01-04 16:38:29	2023-12-05 00:38:29	2023-12-03 20:38:29	2023-12-04 16:38:27

e le funzioni **ADDTIME** e **SUBTIME** nel formato *hhmmss* oppure '**D hh:mm:ss**' con **D** (*Days*) da 0 a 34

```
SELECT CURRENT_TIMESTAMP () AS dataOra,
ADDTIME (CURRENT_TIMESTAMP () , 010101) AS piu1ora,
ADDTIME (CURRENT_TIMESTAMP () , '3 01:01:01') AS piu3g_1h,
ADDTIME (CURRENT_TIMESTAMP () , '34 02:02:02') AS piu34gg_2h,
SUBTIME (CURRENT_TIMESTAMP () , '34 03:03:03') AS meno34gg_3h
```

dataOra	piu1ora	piu3g_1h	piu34gg_2h	meno34gg_3h
2023-12-04 17:05:04	2023-12-04 18:06:05	2023-12-07 18:06:05	2024-01-07 19:07:06	2023-10-31 14:02:01

```
SELECT '2023-10-14 20:15:00' AS dtFine,
'2023-10-12 19:45:00' AS dtIn,
DATEDIFF ('2023-10-12 19:45:00' , '2023-10-14 20:15:00') AS diffgg ,
TIMEDIFF ('2023-10-12 19:45:00' , '2023-10-14 20:15:00') AS diffhh
```

	dtFine	dtIn	diffgg	diffhh
▶	2023-10-14 20:15:00	2023-10-12 19:45:00	2	48:30:00

ATTENZIONE : DATEDIFF calcola 2 giorni di differenza , TIMEDIFF calcola 48 ore (2 giorni) e 30 minuti (sono calcoli indipendenti, NON collegati)

con **DATETIME / TIMESTAMP** si può usare la funzione **TIMESTAMPDIFF** che effettua un unico calcolo, completo, esprimibile in varie unità di tempo (giorni, ore, minuti, etc.).

```
SELECT '2023-10-14 20:15:00' AS dtFine,
'2023-10-12 19:45:00' AS dtIn,
TIMESTAMPDIFF(DAY , '2023-10-12 19:45:00' , '2023-10-14 20:15:00') AS diff_in_gg,
TIMESTAMPDIFF(HOUR , '2023-10-12 19:45:00' , '2023-10-14 20:15:00') AS diff_in_hh,
TIMESTAMPDIFF(MINUTE , '2023-10-12 19:45:00' , '2023-10-14 20:15:00') AS diff_in_min,
TIMESTAMPDIFF(MINUTE , '2023-10-12 19:45:00' , '2023-10-14 20:15:00') /60 AS diff_hh
```

dtFine	dtIn	diff_in_gg	diff_in_hh	diff_in_min	diff_hh	
2023-10-14 20:15:00	2023-10-12 19:45:00	2	48	2910	48.5000	2910 / 60 = 48.5

<https://dev.mysql.com/doc/refman/8.0/en/date-and-time-functions.html>

https://www.w3schools.com/mysql/mysql_ref_functions.asp

- **Date Functions**