Let’s go **in detail with SQL date and time functions**. These are used to **manipulate, extract, and calculate date/time values**. I’ll cover most commonly used functions with examples.

**1. CURRENT\_DATE / GETDATE() / SYSDATE() – Current Date & Time**

| **DBMS** | **Function** | **Example** | **Output** |
| --- | --- | --- | --- |
| MySQL | CURDATE() | SELECT CURDATE(); | 2025-10-16 |
| MySQL | NOW() | SELECT NOW(); | 2025-10-16 13:05:22 |
| SQL Server | GETDATE() | SELECT GETDATE(); | 2025-10-16 13:05:22.000 |
| Oracle | SYSDATE | SELECT SYSDATE FROM DUAL; | 16-OCT-25 |

**2. DATE\_ADD() / DATE\_SUB() – Add or Subtract Intervals**

* **Purpose:** Add or subtract days, months, years, etc.

**MySQL Examples**

-- Add 10 days

SELECT DATE\_ADD('2025-10-16', INTERVAL 10 DAY); -- 2025-10-26

-- Subtract 2 months

SELECT DATE\_SUB('2025-10-16', INTERVAL 2 MONTH); -- 2025-08-16

**SQL Server Equivalent**

-- Add 10 days

SELECT DATEADD(DAY, 10, '2025-10-16'); -- 2025-10-26

-- Subtract 2 months

SELECT DATEADD(MONTH, -2, '2025-10-16'); -- 2025-08-16

**3. DATEDIFF() – Difference Between Dates**

* **Purpose:** Returns difference between two dates in days (or other units in SQL Server).

**Examples:**

-- MySQL: difference in days

SELECT DATEDIFF('2025-10-16', '2025-10-01'); -- 15

-- SQL Server: difference in days

SELECT DATEDIFF(DAY, '2025-10-01', '2025-10-16'); -- 15

**4. DATE\_FORMAT() / TO\_CHAR() – Format Dates**

* **Purpose:** Convert date to specific string format.

**MySQL Example**

SELECT DATE\_FORMAT('2025-10-16', '%d-%m-%Y') AS FormattedDate; -- 16-10-2025

SELECT DATE\_FORMAT(NOW(), '%W, %M %d, %Y') AS FullDate; -- Thursday, October 16, 2025

**Oracle / PostgreSQL Example**

SELECT TO\_CHAR(SYSDATE, 'DD-MM-YYYY') AS FormattedDate FROM DUAL; -- 16-10-2025

SELECT TO\_CHAR(SYSDATE, 'Day, Month DD, YYYY') AS FullDate FROM DUAL;

**5. EXTRACT() / YEAR(), MONTH(), DAY() – Extract Part of Date**

| **Function** | **Purpose** | **Example** |
| --- | --- | --- |
| YEAR(date) | Extract year | SELECT YEAR('2025-10-16'); → 2025 |
| MONTH(date) | Extract month | SELECT MONTH('2025-10-16'); → 10 |
| DAY(date) / DAYOFMONTH(date) | Extract day | SELECT DAY('2025-10-16'); → 16 |
| EXTRACT(unit FROM date) | Generic (Oracle/PostgreSQL) | SELECT EXTRACT(MONTH FROM DATE '2025-10-16'); → 10 |

**6. DAYNAME() / MONTHNAME() – Get Name of Day or Month**

SELECT DAYNAME('2025-10-16'); -- Thursday

SELECT MONTHNAME('2025-10-16'); -- October

**7. TIMESTAMPDIFF() – Difference in Specific Unit (MySQL)**

-- Difference in days

SELECT TIMESTAMPDIFF(DAY, '2025-10-01', '2025-10-16'); -- 15

-- Difference in months

SELECT TIMESTAMPDIFF(MONTH, '2025-01-01', '2025-10-16'); -- 9

**8. ADDTIME() / SUBTIME() – Add or Subtract Time (MySQL)**

SELECT ADDTIME('10:30:00', '02:15:00'); -- 12:45:00

SELECT SUBTIME('10:30:00', '01:15:00'); -- 09:15:00

**9. NOW(), CURTIME(), HOUR(), MINUTE(), SECOND() – Time Functions**

SELECT NOW(); -- 2025-10-16 13:05:22

SELECT CURTIME(); -- 13:05:22

SELECT HOUR(NOW()); -- 13

SELECT MINUTE(NOW()); -- 5

SELECT SECOND(NOW()); -- 22

**10. Practical Examples**

**a) Employee Birthdays in Current Month**

SELECT Name, DOB

FROM Employees

WHERE MONTH(DOB) = MONTH(CURDATE());

**b) Employee Tenure (Years Worked)**

SELECT Name,

FLOOR(DATEDIFF(CURDATE(), JoiningDate)/365) AS YearsWorked

FROM Employees;

**c) Next Review Date (Add 6 months)**

SELECT Name, DATE\_ADD(JoiningDate, INTERVAL 6 MONTH) AS NextReview

FROM Employees;

**✅ Key Notes**

1. NOW() returns date and time; CURDATE() returns only date.
2. DATEDIFF() usually returns days; TIMESTAMPDIFF() allows other units.
3. DATE\_FORMAT() or TO\_CHAR() is essential for readable date output.
4. Always check **DBMS-specific syntax**: MySQL, SQL Server, Oracle, PostgreSQL differ slightly.