

# Раздел 9

# Функции и операторы

Видеокурс: <https://stepik.org/a/130488>

# Обзор

Логические операторы:

- AND, OR, NOT

Операторы сравнения:

- =, >, <, >=, <=, BETWEEN
- IS NULL, IS NOT NULL
- LIKE

Математические операторы:

- +, -, \*, / и т.д.

Операторы для символьных типов:

- ||

Математические функции:

- ABS(n), ROUND(n) и т.д.

Функции для символьных типов:

- LOWER(str), UPPER(str)
- CHARACTER\_LENGTH(str)
- SUBSTRING(), POSITION()

Функции для дат:

- TO\_DATE(str), TO\_CHAR(dt)
- EXTRACT(field FROM dt)

# Abs, Round

**SELECT ABS (10), ABS (-10)**

abs	abs
10	10

**SELECT ROUND (2.8),  
ROUND (2.3),  
ROUND (2.5)**

round	round	round
3	2	3

# Trunc, Floor, Ceiling

SELECT TRUNC (2.8), TRUNC(-2.8)

trunk	trunk
2	-2

SELECT FLOOR (2.8), FLOOR (-2.8)

floor	floor
2	-3

SELECT CEILING (2.8), CEILING (-2.8)

ceiling	ceiling
3	-2

SELECT TRUNC (2.8411, 2)

trunk
2,84

# LIKE

album

album_id	name	band_id	year
19318	The Black Album	93	1991
18725	Master of Puppets	93	1986
297418	A Kind of Magic	192	1986
54326	Queen II	192	1974
74821	Sheer Heart Attack	192	1974

Результат

album_id	name	band_id	year
18725	Master of Puppets	93	1986
297418	A Kind of Magic	192	1986

```
SELECT *
  FROM album
 WHERE
    name LIKE '% of %'
```

;

- *%* - любое количество символов
- *\_* - один символ

# Substring, Position, Character\_length

```
SELECT SUBSTRING ('This is a book', 11, 4),  
                  SUBSTRING ('This is a book', 22, 3)
```

```
SELECT POSITION('book' in 'This is a book'),  
                  POSITION('RED' in 'This is a book')
```

```
SELECT Character_length ('This is a book')
```

substring	substring
book	

position	position
11	0

character_length
14

# Trim

```
SELECT TRIM(' BOOK '),
        TRIM('x' from 'xxBOOKxx'),
        TRIM(leading 'x' from 'xxBOOKxx'),
        TRIM(trailing 'x' from 'xxBOOKxx')
```

trim	trim	trim	trim
BOOK	BOOK	BOOKxx	xxBOOK

# Lower, Upper

SELECT LOWER ('This is a BOOK')

lower

this is a book

SELECT UPPER ('This is a BOOK')

upper

THIS IS A BOOK

# To\_date, to\_timestamp

```
SELECT to_date('2018-12-31','yyyy-mm-dd'),  
        to_date('31-12-2018','dd-mm-yyyy')
```

to_date	to_date
2018-12-31	2018-12-31

```
SELECT to_timestamp('2018-12-31 23:59:59',  
                    'yyyy-mm-dd hh24:mi:ss')
```

to_timestamp
2018-12-31 23:59:59

# To\_char

```
SELECT to_char(date '2018-12-31','yyyy-mm-dd')
```

to\_date

2018-12-31

```
SELECT to_char(date '2018-12-31','dd-mm-yyyy')
```

to\_date

31-12-2018

# Current\_date

```
SELECT current_date,  
       current_time,  
       current_timestamp
```

current_date	current_time	current_timestamp
2018-01-01	23:55:55.112233+00:00	2018-01-01 23:55:55.112233+00:00

# Extract

```
SELECT extract( year    from date '2018-12-31'),  
       extract( month   from date '2018-12-31'),  
       extract( day     from date '2018-12-31')
```

extract	extract	extract
2018	12	31