



# Math Function

## Math Functions:

1. `abs(Number)` : Returns the absolute value (non-negative) of a number.

```
echo abs(10); // 10
echo abs(-20); // 20
```

2. `mt_rand(min, max)` || `rand(min, max)` : Generates random numbers. `mt_rand` uses the Mersenne Twister algorithm.

```
echo rand(); // Random number
echo mt_getrandmax(); // Maximum random value
```

3. `intdiv(dividend, divisor)` : Performs integer division and returns an integer result.

```
echo intdiv(11, 5); // 2
```

4. `fmod(dividend, divisor)` : Calculates the remainder of floating-point division.

```
echo fmod(11.5, 5); // 1.5
```

5. `ceil(Number)` : Rounds a number up to the nearest integer.

```
echo ceil(5.99); // 6
```

6. `floor(Number)` : Rounds a number down to the nearest integer.

```
echo floor(5.99); // 5
```

7. `round(Number, Precision, Mode)`: Rounds a number to the nearest integer, with optional precision and rounding mode.

```
echo round(5.99); // 6
```

8. `sqrt(Number)`: Calculates the square root of a number.

```
echo sqrt(16); // 4
```

9. `min(array) || min(values)`: Returns the lowest value in a list or array.

```
echo min(10, 20, -40, 50); // -4
```

10. `max(array) || max(values)`: Returns the highest value in a list or array.

```
echo max(10, 20, -40, 50); // 50
```

## Filter Functions:

1. `filter_list()`: Returns a list of all supported filters.

```
echo "<pre>";  
print_r(filter_list());  
echo "</pre>";
```

2. `filter_var(Value, Filter, Options)`: Filters a variable with a specified filter. Can validate types such as bool, URL, IP, MAC, etc.

```
echo filter_var($val, FILTER_VALIDATE_BOOL); // Validate boolean
```

3. `filter_var(Value, Filter, Options)` (Validation Filters):

- `FILTER_VALIDATE_EMAIL` : Validates email addresses.
- `FILTER_VALIDATE_INT` : Validates integers, optionally with a range.
- `FILTER_VALIDATE_FLOAT` : Validates floats with a range.

```
var_dump(filter_var($email, FILTER_VALIDATE_EMAIL));
```

#### 4. Sanitize Filters (`FILTER_SANITIZE_*`):

- `FILTER_SANITIZE_EMAIL` : Sanitizes an email address by removing invalid characters.
- `FILTER_SANITIZE_NUMBER_INT` : Removes all but digits, plus, and minus signs.
- `FILTER_SANITIZE_NUMBER_FLOAT` : Removes all but digits, plus, minus, and optionally decimal points or exponent symbols.
- `FILTER_SANITIZE_URL` : Sanitizes a URL.

```
var_dump(filter_var($email, FILTER_SANITIZE_EMAIL));
```

#### 5. `filter_input(Type, Value, Filter, Options)` : Filters input data from GET, POST, COOKIE, SERVER, or ENV.

```
echo filter_input(INPUT_GET, "num", FILTER_SANITIZE_NUMBER_INT);
```