1. PHP Program to Convert Binary Number to Decimal

```php
<?php
function binaryToDecimal($binary) {
    return bindec($binary);
}

$binary = "1010";
echo binaryToDecimal($binary);
?>
```

2. Program to convert decimal number to binary

```php
<?php
function decimalToBinary($decimal) {
    return decbin($decimal);
}

$decimal = 10;
echo decimalToBinary($decimal);
?>
```

3. PHP Program for calculate Power Using pow() Function

```php
<?php
$base = 2;
$exponent = 3;
echo pow($base, $exponent);
?>
```

4. PHP program for Copy String Without Using strcpy()

```php
<?php
function copyString($str) {
    $copy = '';
    for ($i = 0; $i < strlen($str); $i++) {
        $copy .= $str[$i];
    }
    return $copy;
}

$str = "Hello";
echo copyString($str);
?>
```

5. PHP Program to Check Whether a Character is an Alphabet or not

```php
<?php
function isAlphabet($char) {
    return ctype_alpha($char);
}

$char = 'A';
if (isAlphabet($char)) {
    echo "$char is an alphabet.";
```

```
} else {
    echo "$char is not an alphabet.";
}
?>
```

6. PHP Program to Sum of Natural Numbers Using while Loop

```
<?php
$n = 10;
$sum = 0;
$i = 1;

while ($i <= $n) {
    $sum += $i;
    $i++;
}

echo "Sum of natural numbers: $sum";
?>
```

7. PHP Program to Find Missing Numbers in Array

```
<?php
function findMissingNumbers($arr, $n) {
    $completeArr = range(1, $n);
    return array_diff($completeArr, $arr);
}

$arr = [1, 2, 4, 6];
$n = 6;
$missing = findMissingNumbers($arr, $n);
print_r($missing);
?>
```

8. PHP Program to Print all Non Repeated Elements in an Array

```
<?php
function nonRepeatedElements($arr) {
    $freq = array_count_values($arr);
    foreach ($freq as $key => $value) {
        if ($value == 1) {
            echo $key . " ";
        }
    }
}

$arr = [1, 2, 2, 3, 4, 4, 5];
nonRepeatedElements($arr);
?>
```

9. PHP Program to Find Matrix Multiplication

```
<?php
function multiplyMatrices($matrix1, $matrix2) {
```

```
    $result = [];

    for ($i = 0; $i < count($matrix1); $i++) {
        for ($j = 0; $j < count($matrix2[0]); $j++) {
            $result[$i][$j] = 0;
            for ($k = 0; $k < count($matrix2); $k++) {
                $result[$i][$j] += $matrix1[$i][$k] * $matrix2[$k][$j];
            }
        }
    }
    return $result;
}

$matrix1 = [[1, 2], [3, 4]];
$matrix2 = [[5, 6], [7, 8]];
$result = multiplyMatrices($matrix1, $matrix2);

foreach ($result as $row) {
    echo implode(" ", $row) . "\n";
}
?>
```

10. PHP Program to Simple Calculator using switch Statement

```
<?php
$num1 = 10;
$num2 = 5;
$operator = '+';

switch ($operator) {
    case '+':
        echo $num1 + $num2;
        break;
    case '-':
        echo $num1 - $num2;
        break;
    case '*':
        echo $num1 * $num2;
        break;
    case '/':
        if ($num2 != 0) {
            echo $num1 / $num2;
        } else {
            echo "Division by zero error.";
        }
        break;
    default:
        echo "Invalid operator";
}
?>
```

11. PHP Program to Find Determinant of a Matrix

```php
<?php
function determinant($matrix) {
    if (count($matrix) == 2) {
        return ($matrix[0][0] * $matrix[1][1]) - ($matrix[0][1] * $matrix[1][0]);
    }
    return 0; // You can extend this for larger matrices.
}

$matrix = [[1, 2], [3, 4]];
echo "Determinant: " . determinant($matrix);
?>
```

12. PHP Program to display Inverted half pyramid of numbers

```php
<?php
$n = 5;
for ($i = $n; $i >= 1; $i--) {
    for ($j = 1; $j <= $i; $j++) {
        echo $j . " ";
    }
    echo "\n";
}
?>
```

13. PHP Program to display Inverted full pyramid of stars(“*”)

```php
<?php
$n = 5;
for ($i = $n; $i >= 1; $i--) {
    for ($j = 1; $j <= $n - $i; $j++) {
        echo " ";
    }
    for ($k = 1; $k <= 2 * $i - 1; $k++) {
        echo "*";
    }
    echo "\n";
}
?>
```

14. PHP Program to display Half Pyramid of Alphabets

```php
<?php
$alphabets = range('A', 'Z');
$n = 5;
for ($i = 0; $i < $n; $i++) {
    for ($j = 0; $j <= $i; $j++) {
        echo $alphabets[$j] . " ";
    }
    echo "\n";
}
?>
```

15. PHP Program to display Inverted half pyramid of *.

```
<?php
$n = 5;
for ($i = $n; $i >= 1; $i--) {
    for ($j = 1; $j <= $i; $j++) {
        echo "* ";
    }
    echo "\n";
}
?>
```

16. PHP Program to display Half Pyramid of *

```
<?php
$n = 5;
for ($i = 1; $i <= $n; $i++) {
    for ($j = 1; $j <= $i; $j++) {
        echo "* ";
    }
    echo "\n";
}
?>
```

17. PHP Program to Find the Frequency of a Character

```
<?php
function charFrequency($str, $char) {
    $count = 0;
    for ($i = 0; $i < strlen($str); $i++) {
        if ($str[$i] == $char) {
            $count++;
        }
    }
    return $count;
}

$str = "hello world";
$char = 'l';
echo "Frequency of $char: " . charFrequency($str, $char);
?>
```

18. PHP Program to Calculate Length of String without Using strlen() Function

```
<?php
function stringLength($str) {
    $count = 0;
    while (isset($str[$count])) {
        $count++;
    }
    return $count;
}

$str = "Hello, world!";
```

```
echo "Length of string: " . stringLength($str);
?>
```

19. PHP Program to Swap Elements Using Call by Reference

```
<?php
function swap(&$a, &$b) {
    $temp = $a;
    $a = $b;
    $b = $temp;
}

$a = 5;
$b = 10;
swap($a, $b);
echo "After swap: a = $a, b = $b";
?>
```

20. Create a PHP program to Check Vowel or consonant.

```
<?php
function checkVowelOrConsonant($char) {
    if (in_array(strtolower($char), ['a', 'e', 'i', 'o', 'u'])) {
        return "$char is a vowel.";
    } else {
        return "$char is a consonant.";
    }
}

$char = 'A';
echo checkVowelOrConsonant($char);
?>
```

21. PHP Program to Find the Roots of a Quadratic Equation

```
<?php
function findRoots($a, $b, $c) {
    $d = ($b * $b) - (4 * $a * $c); // Determinant
    if ($d > 0) {
        $root1 = (-$b + sqrt($d)) / (2 * $a);
        $root2 = (-$b - sqrt($d)) / (2 * $a);
        echo "Roots are real and different: $root1, $root2";
    } elseif ($d == 0) {
        $root = -$b / (2 * $a);
        echo "Roots are real and equal: $root";
    } else {
        $realPart = -$b / (2 * $a);
        $imaginaryPart = sqrt(-$d) / (2 * $a);
        echo "Roots are complex: $realPart + {$imaginaryPart}i, $realPart -
{$imaginaryPart}i";
    }
}
```

```
$a = 1;
$b = -3;
$c = 2;
findRoots($a, $b, $c);
?>
```

22. PHP Program to Generate Multiplication Table

```
<?php
function multiplicationTable($n) {
    for ($i = 1; $i <= 10; $i++) {
        echo "$n * $i = " . ($n * $i) . "\n";
    }
}

$n = 5;
multiplicationTable($n);
?>
```

23. PHP Program to Display Fibonacci Sequence

```
<?php
function fibonacci($n) {
    $first = 0;
    $second = 1;
    echo "$first $second ";

    for ($i = 3; $i <= $n; $i++) {
        $next = $first + $second;
        echo "$next ";
        $first = $second;
        $second = $next;
    }
}

$n = 10;
fibonacci($n);
?>
```

24. PHP Program to Print Lowercase/Uppercase alphabets

```
<?php
echo "Lowercase: ";
for ($char = 'a'; $char <= 'z'; $char++) {
    echo "$char ";
}

echo "\nUppercase: ";
for ($char = 'A'; $char <= 'Z'; $char++) {
    echo "$char ";
}
?>
```

25. PHP Program to Print Armstrong Numbers Between Two Integers

```php
<?php
function isArmstrong($num) {
    $sum = 0;
    $temp = $num;
    $n = strlen($num);

    while ($temp != 0) {
        $digit = $temp % 10;
        $sum += pow($digit, $n);
        $temp = (int)($temp / 10);
    }

    return $num == $sum;
}

$start = 100;
$end = 999;

for ($i = $start; $i <= $end; $i++) {
    if (isArmstrong($i)) {
        echo "$i ";
    }
}
?>
```

26. PHP Program to Print Prime Numbers Between Two Integers

```php
<?php
function isPrime($num) {
    if ($num < 2) return false;
    for ($i = 2; $i <= sqrt($num); $i++) {
        if ($num % $i == 0) return false;
    }
    return true;
}

$start = 10;
$end = 50;

for ($i = $start; $i <= $end; $i++) {
    if (isPrime($i)) {
        echo "$i ";
    }
}
?>
```

27. PHP Program to Find the Transpose of a Matrix

```php
<?php
function transpose($matrix) {
    $transpose = [];
```

```
    for ($i = 0; $i < count($matrix); $i++) {
        for ($j = 0; $j < count($matrix[$i]); $j++) {
            $transpose[$j][$i] = $matrix[$i][$j];
        }
    }
    return $transpose;
}

$matrix = [[1, 2, 3], [4, 5, 6], [7, 8, 9]];
$transpose = transpose($matrix);

foreach ($transpose as $row) {
    echo implode(" ", $row) . "\n";
}
?>
```

28. PHP Program to Swap Elements

```
<?php
function swapElements($a, $b) {
    $temp = $a;
    $a = $b;
    $b = $temp;
    return [$a, $b];
}

$a = 5;
$b = 10;
list($a, $b) = swapElements($a, $b);
echo "After swap: a = $a, b = $b";
?>
```

29. PHP Sum of Natural Numbers Using Function

```
<?php
function sumOfNaturalNumbers($n) {
    return ($n * ($n + 1)) / 2;
}

$n = 10;
echo "Sum of natural numbers: " . sumOfNaturalNumbers($n);
?>
```

30. Access Array Elements Using PHP Program

```
<?php
$array = ["apple", "banana", "cherry"];
foreach ($array as $element) {
    echo "$element ";
}
?>
```

31. PHP Program to Multiply Matrices by Passing it to a Function

```php
<?php
function multiplyMatrices($matrix1, $matrix2) {
    $result = [];

    for ($i = 0; $i < count($matrix1); $i++) {
        for ($j = 0; $j < count($matrix2[0]); $j++) {
            $result[$i][$j] = 0;
            for ($k = 0; $k < count($matrix2); $k++) {
                $result[$i][$j] += $matrix1[$i][$k] * $matrix2[$k][$j];
            }
        }
    }
    return $result;
}

$matrix1 = [[1, 2], [3, 4]];
$matrix2 = [[5, 6], [7, 8]];
$result = multiplyMatrices($matrix1, $matrix2);

foreach ($result as $row) {
    echo implode(" ", $row) . "\n";
}
?>
```