Exercises User Defined Functions

Exercise 1: Vat calculator
Create two variables '**price'** and '**vat'**, and create a function called '**calculateVat'** that takes two parameters, and returns a variable '**calculatedPrice'**. Print out the price, vat and total price.
Expected output -> (Price is: '**price'**, Vat is: '**vat'**, Total price is: '**calculateVat'**)

```php
$price = 100;
$vat = 0.21;

function calculateVat($price, $vat) {
    $calculatedPrice = ($price * $vat) + $price;
    return $calculatedPrice;
}

echo "Price: " . $price . "<br>";
echo "Vat: " . $vat  . "<br>";
echo "Total price: " . calculateVat($price, $vat);
```

Exercise 2: Leap year
Create a variable '**year'** and create a function '**isLeapYear'** that checks if the year is a leap year. If it is a leap year, return a **Boolean** value. In the exercises of the control structures, we discussed what a leap year is.
Expected output -> ('year' is a leap year')
('year is not a leap year')

```php
$year = 2000;

function isLeapYear($year) {
    if ($year % 400 == 0 || $year % 4 == 0) {
        return true;
    } else {
        return false;
    }
}

if (isLeapYear($year)) {
    echo $year . " is a leap year";
} else {
    echo $year . " is not a leap year";
}
```

Exercise 3: Calculator

Create two variables '**num1'** and '**num2'** and create four functions '**addNumbers'**, '**subtractNumbers'**, '**multiplyNumbers'** and '**divideNumbers'**. The function accepts two parameters, and return the addition, subtraction, multiplicity and division of the two numbers.

Expected output -> ('Addition of 'num1' and 'num2' is 'addnumbers')
('Subtraction of 'num1' and 'num2' is 'addnumbers')
('Multiplicity of 'num1' and 'num2' is 'addnumbers')
('Division of 'num1' and 'num2' is 'addnumbers')

```php
$num1 = 10;
$num2 = 20;

function addNumbers($num1, $num2) {
    return $num1 + $num2;
}

function subtractNumbers($num1, $num2) {
    return $num1 - $num2;
}

function multiplyNumbers($num1, $num2) {
    return $num1 * $num2;
}
```

```php
function divideNumbers($num1, $num2) {
    return $num1 / $num2;
}

echo "Addition of " . $num1 . " and " . $num2 . " is " . addNumbers($num1, $num2) . "<br>";
echo "Subtraction of " . $num1 . " and " . $num2 . " is " . subtractNumbers($num1, $num2)  . "<br>";
echo "Multiplicity of " . $num1 . " and " . $num2 . " is ". multiplyNumbers($num1, $num2)  . "<br>";
echo "Division of " . $num1 . " and " . $num2 . " is " . divideNumbers($num1, $num2)  . "<br>";
```

Exercise 4: Swapping numbers

Create a function '**swapNumbers'** that takes two parameters '**num1'** and '**num2'**, and inside the function, that swaps the numbers.

Expected output -> ('Before swapping: num1 = 4, num2 = 8');
('After swapping: num1 = 8, num2 = 4')

```php
$num1 = 10;
$num2 = 20;


function swapNumbers($num1, $num2) {
    $temp = $num1;
    $num1 = $num2;
    $num2 = $temp;

    echo "After swapping: num 1 = " . $num1 . " num 2 = " . $num2;
}

echo "Before swapping: num 1 = " . $num1 . " num 2 = " . $num2 . "<br>";
swapNumbers($num1, $num2);
```

Exercise 5: Even or Odd

Create a function '**evenOrNot'** that checks if a given number '**num1'** is even or odd. Echo the expected output.

Expected output -> ('Num1 is even')
-> ('Num1 is odd')

```php
$num1 = 9;

function evenOrNot($num1) {
    if ($num1 % 2 == 0) {
        echo $num1 . " is even";
    } else {
        echo $num1 . " is odd";
    }
}

evenOrNot($num1);
```

Exercise 6: Prime number

Create a function '**isPrime**' that checks if '**num1**' is a prime number or not. Return true if it is a prime number and return false if it is not a prime number.

Expect output -> ('num1 is a prime number')
('num1 is not a prime number')

```php
$num1 = 7;

function isPrime($num1) {
    if ($num1 == 1) {
        return false;
    } else {
        for ($i=2; $i < $num1 / 2; $i++) {
            if ($num1 & $i == 0) {
                return false;
            }
        }
        return 1;
    }
}
```

```php
if (isPrime($num1)) {
    echo "This number is a prime";
} else {
    echo "This number is not a prime";
}
```