<?php

// Q1. Write a PHP script to check if a given number is positive, negative, or zero using an if statement.

$number = 5;

if ($number > 0) {

    echo "The number is positive.";

} elseif ($number < 0) {

    echo "The number is negative.";

} else {

    echo "The number is zero.";

}

// Q2. Write a PHP script to check if a given number is even or odd using an if else statement.

$number = 5;

if ($number % 2 == 0) {

    echo "The number is even.";

} else {

    echo "The number is odd.";

}

// Q3. Write a PHP script to check if a given number is divisible by 3 or not using an if else statement.

$number = 6;

if ($number % 3 == 0) {

    echo "The number is divisible by 3.";

} else {

    echo "The number is not divisible by 3.";

}

// Q4. Write a PHP script to check if a given number is a multiple of 5 using an if else statement.

$number = 10;

if ($number % 5 == 0) {

    echo "The number is a multiple of 5.";

} else {

    echo "The number is not a multiple of 5.";

}

// Q5. Write a PHP script to check if a given number is a multiple of 3 and 5 using an if else statement.

$number = 15;

if ($number % 3 == 0 && $number % 5 == 0) {

    echo "The number is a multiple of 3 and 5.";

} else {

    echo "The number is not a multiple of 3 and 5.";

}

// Q6. Write a PHP script to find the largest of three numbers using nested if statements.

$a = 10;

$b = 20;

$c = 15;

if ($a >= $b) {

    if ($a >= $c) {

        echo "$a is the largest.";

    } else {

        echo "$c is the largest.";

    }

} else {

    if ($b >= $c) {

        echo "$b is the largest.";

    } else {

        echo "$c is the largest.";

    }

}

// Q7. Write a PHP script to check if a given year is a leap year or not using an if else statement.

$year = 2020;

if ($year % 4 == 0) {

    if ($year % 100 == 0) {

        if ($year % 400 == 0) {

            echo "$year is a leap year.";

        } else {

            echo "$year is not a leap year.";

        }

    } else {

        echo "$year is a leap year.";

    }

} else {

    echo "$year is not a leap year.";

}

// Q8. Write a PHP script to check if a given character is a vowel or consonant using an if else statement.

$char = 'a';

if ($char == 'a' || $char == 'e' || $char == 'i' || $char == 'o' || $char == 'u') {

    echo "$char is a vowel.";

} else {

    echo "$char is a consonant.";

}

// Q9. Write a PHP script to check if a given character is an alphabet or not using an if else statement.

$char = 'a';

if (($char >= 'a' && $char <= 'z') || ($char >= 'A' && $char <= 'Z')) {

    echo "$char is an alphabet.";

} else {

    echo "$char is not an alphabet.";

}

// Q10. Write a PHP script to check if a given character is a lowercase or uppercase alphabet using an if else statement.

$char = 'A';

if ($char >= 'a' && $char <= 'z') {

    echo "$char is a lowercase alphabet.";

} elseif ($char >= 'A' && $char <= 'Z') {

    echo "$char is an uppercase alphabet.";

} else {

    echo "$char is not an alphabet.";

}

// Q11. Write a PHP script to check if a given character is a digit or not using an if else statement.

$char = '5';

if ($char >= '0' && $char <= '9') {

    echo "$char is a digit.";

} else {

    echo "$char is not a digit.";

}

// Q12. Write a PHP script to check if a given character is an alphanumeric character or not using an if else statement.

$char = '5';

if (($char >= 'a' && $char <= 'z') || ($char >= 'A' && $char <= 'Z') || ($char >= '0' && $char <= '9')) {

    echo "$char is an alphanumeric character.";

} else {

    echo "$char is not an alphanumeric character.";

}

// Q13. Write a PHP script to check if a given character is a special character or not using an if else statement.

$char = '@';

if (($char >= 'a' && $char <= 'z') || ($char >= 'A' && $char <= 'Z') || ($char >= '0' && $char <= '9')) {

    echo "$char is not a special character.";

} else {

    echo "$char is a special character.";

}

// Q14. Write a PHP script to check if a given number is a prime number or not using an if else statement.

$number = 7;

$is\_prime = true;

if ($number <= 1) {

    $is\_prime = false;

} else {

    for ($i = 2; $i <= sqrt($number); $i++) {

        if ($number % $i == 0) {

            $is\_prime = false;

            break;

        }

    }

}

if ($is\_prime) {

    echo "$number is a prime number.";

} else {

    echo "$number is not a prime number.";

}

// Q15. Write a PHP script to check if a given number is a perfect number or not using an if else statement.

$number = 28;

$sum = 0;

for ($i = 1; $i <= $number / 2; $i++) {

    if ($number % $i == 0) {

        $sum += $i;

    }

}

if ($sum == $number) {

    echo "$number is a perfect number.";

} else {

    echo "$number is not a perfect number.";

}

// Q16. Write a PHP script to check if a given number is an Armstrong number or not using an if else statement. (Armstrong number is a number that is equal to the sum of cubes of its digits. eg. 153 = 1^3 + 5^3 + 3^3)

$number = 153;

$sum = 0;

$temp = $number;

while ($temp != 0) {

    $remainder = $temp % 10;

    $sum += $remainder \*\* 3;

    $temp = (int)($temp / 10);

}

if ($sum == $number) {

    echo "$number is an Armstrong number.";

} else {

    echo "$number is not an Armstrong number.";

}

// Q17. Write a PHP script to check if a given number is a palindrome number or not using an if else statement.

$number = 121;

$reverse = 0;

$temp = $number;

while ($temp != 0) {

    $remainder = $temp % 10;

    $reverse = $reverse \* 10 + $remainder;

    $temp = (int)($temp / 10);

}

if ($reverse == $number) {

    echo "$number is a palindrome number.";

} else {

    echo "$number is not a palindrome number.";

}

// Q18. Write a PHP script to check if a given number is a strong number or not using an if else statement.

$number = 145;

$sum = 0;

$temp = $number;

while ($temp != 0) {

    $factorial = 1;

    $remainder = $temp % 10;

    for ($i = 1; $i <= $remainder; $i++) {

        $factorial \*= $i;

    }

    $sum += $factorial;

    $temp = (int)($temp / 10);

}

if ($sum == $number) {

    echo "$number is a strong number.";

} else {

    echo "$number is not a strong number.";

}

// Q20. Write a PHP script to check if a given number is a harshad number or not using an if else statement. A Harshad number (also called Niven number) is an integer that is divisible by the sum of its digits. eg. 18 = 1 + 8 = 9, 18 is divisible by 9.

$number = 18;

$sum = 0;

$temp = $number;

while ($temp != 0) {

    $remainder = $temp % 10;

    $sum += $remainder;

    $temp = (int)($temp / 10);

}

if ($number % $sum == 0) {

    echo "$number is a harshad number.";

} else {

    echo "$number is not a harshad number.";

}

// Q21. Write a PHP script to check if a given number is a pronic number or not using an if else statement. A pronic number is a number which is the product of two consecutive integers. eg. 6 = 2 \* 3. 6 is a pronic number. 12 = 3 \* 4. 12 is a pronic number.

$number = 6;

$is\_pronic = false;

for ($i = 1; $i <= $number; $i++) {

    if ($i \* ($i + 1) == $number) {

        $is\_pronic = true;

        break;

    }

}

if ($is\_pronic) {

    echo "$number is a pronic number.";

} else {

    echo "$number is not a pronic number.";

}

// Q22. Write a PHP script to check if a given number is a neon number or not using an if else statement. A neon number is a number where the sum of digits of the square of the number is equal to the number itself. eg. 9 is a neon number. 9 \* 9 = 81, 8 + 1 = 9.

$number = 9;

$sum = 0;

$square = $number \* $number;

while ($square != 0) {

    $remainder = $square % 10;

    $sum += $remainder;

    $square = (int)($square / 10);

}

if ($sum == $number) {

    echo "$number is a neon number.";

} else {

    echo "$number is not a neon number.";

}

// Q23. Write a PHP script to check if a given number is a narcissistic number or not using an if else statement. a narcissistic number is a number that is the sum of its own digits each raised to the power of the number of digits. eg. 153 = 1^3 + 5^3 + 3^3.

$number = 153;

$sum = 0;

$temp = $number;

$length = strlen($number);

while ($temp != 0) {

    $remainder = $temp % 10;

    $sum += $remainder \*\* $length;

    $temp = (int)($temp / 10);

}

if ($sum == $number) {

    echo "$number is a narcissistic number.";

} else {

    echo "$number is not a narcissistic number.";

}

// Q24. Write a PHP script to check if a given number is a perfect square or not using an if else statement. a perfect square is a number that is the square of an integer. eg. 16 = 4 \* 4.

$number = 16;

$is\_perfect\_square = false;

for ($i = 1; $i \* $i <= $number; $i++) {

    if ($i \* $i == $number) {

        $is\_perfect\_square = true;

        break;

    }

}

if ($is\_perfect\_square) {

    echo "$number is a perfect square.";

} else {

    echo "$number is not a perfect square.";

}

// Q25. Write a PHP script to check if a given number is a Fibonacci number or not using an if else statement.

$number = 13;

function isPerfectSquare($number)

{

    $root = sqrt($number);

    return ($root \* $root == $number);

}

function isFibonacci($number)

{

    return isPerfectSquare(5 \* $number \* $number + 4) || isPerfectSquare(5 \* $number \* $number - 4);

}

if (isFibonacci($number)) {

    echo "$number is a Fibonacci number.";

} else {

    echo "$number is not a Fibonacci number.";

}

// Q26. Write a PHP script to check if a given number is a happy prime number or not using an if else statement. A happy prime number is a number that is both happy and prime. A happy number is a number which eventually reaches 1 when replaced by the sum of the square of each digit. A prime number is a number that is greater than 1 and divided by 1 and itself only.

$number = 7;

function isHappyNumber($number)

{

    $sum = 0;

    while ($number > 0) {

        $remainder = $number % 10;

        $sum += $remainder \* $remainder;

        $number = (int)($number / 10);

    }

    return $sum;

}

function isPrime($number)

{

    if ($number <= 1) {

        return false;

    }

    for ($i = 2; $i <= sqrt($number); $i++) {

        if ($number % $i == 0) {

            return false;

        }

    }

    return true;

}

$result = $number;

while ($result != 1 && $result != 4) {

    $result = isHappyNumber($result);

}

if ($result == 1 && isPrime($number)) {

    echo "$number is a happy prime number.";

} else {

    echo "$number is not a happy prime number.";

}

//  switch case

// Q27. Write a PHP script to print the name of the day based on the number (1-7) using a switch statement.

$day = 3;

switch ($day) {

    case 1:

        echo "Sunday";

        break;

    case 2:

        echo "Monday";

        break;

    case 3:

        echo "Tuesday";

        break;

    case 4:

        echo "Wednesday";

        break;

    case 5:

        echo "Thursday";

        break;

    case 6:

        echo "Friday";

        break;

    case 7:

        echo "Saturday";

        break;

    default:

        echo "Invalid day number.";

}

// Q28. Write a PHP script to print the name of the month based on the number (1-12) using a switch statement.

$month = 5;

switch ($month) {

    case 1:

        echo "January";

        break;

    case 2:

        echo "February";

        break;

    case 3:

        echo "March";

        break;

    case 4:

        echo "April";

        break;

    case 5:

        echo "May";

        break;

    case 6:

        echo "June";

        break;

    case 7:

        echo "July";

        break;

    case 8:

        echo "August";

        break;

    case 9:

        echo "September";

        break;

    case 10:

        echo "October";

        break;

    case 11:

        echo "November";

        break;

    case 12:

        echo "December";

        break;

    default:

        echo "Invalid month number.";

}

// Q29. Write a PHP script to print the name of the color based on the code (R, G, B) using a switch statement.

$color = 'R';

switch ($color) {

    case 'R':

        echo "Red";

        break;

    case 'G':

        echo "Green";

        break;

    case 'B':

        echo "Blue";

        break;

    default:

        echo "Invalid color code.";

}

// Q30. Write a PHP script to print the name of the grade based on the marks (0-100) using a switch statement.

$marks = 85;

switch (true) {

    case $marks >= 90:

        echo "A+ grade";

        break;

    case $marks >= 85:

        echo "A grade";

        break;

    case $marks >= 80:

        echo "B grade";

        break;

    case $marks >= 75:

        echo "C grade";

        break;

    case $marks >= 60:

        echo "D grade";

        break;

    default:

        echo "Fail";

}

// Q31. Write a PHP script to print the first 10 natural numbers using a for loop.

for ($i = 1; $i <= 10; $i++) {

    echo "$i ";

}

// Q32. Write a PHP script to print the first 10 even numbers using a for loop.

for ($i = 2; $i <= 20; $i += 2) {

    echo "$i ";

}

// Q33. Write a PHP script to print the first 10 odd numbers using a for loop.

for ($i = 1; $i <= 19; $i += 2) {

    echo "$i ";

}

// Q34. Write a PHP script to print the first 10 natural numbers in reverse order using a for loop.

for ($i = 10; $i >= 1; $i--) {

    echo "$i ";

}

// Q35. Write a PHP script to print the first 10 even numbers in reverse order using a for loop.

for ($i = 20; $i >= 2; $i -= 2) {

    echo "$i ";

}

// Q36. Write a PHP script to print the first 10 odd numbers in reverse order using a for loop.

for ($i = 19; $i >= 1; $i -= 2) {

    echo "$i ";

}

// Q37. Write a PHP script to print the sum of the first 10 natural numbers using a for loop.

$sum = 0;

for ($i = 1; $i <= 10; $i++) {

    $sum += $i;

}

echo "The sum of the first 10 natural numbers is $sum.";

// Q38. Write a PHP script to iterate through an associative array and print the key-value pairs using a foreach loop.

$colors = array("red" => "#ff0000", "green" => "#00ff00", "blue" => "#0000ff");

foreach ($colors as $key => $value) {

    echo "Key: $key, Value: $value<br>";

}

// Q39. Write a PHP script to iterate through an indexed array and print the values using a foreach loop.

$colors = array("red", "green", "blue");

foreach ($colors as $value) {

    echo "$value<br>";

}

// Q40. Write a PHP script to print numbers from 1 to 5 using a while loop.

$i = 1;

while ($i <= 5) {

    echo "$i ";

    $i++;

}

// Q41. Write a PHP script to print numbers from 1 to 5 using a do-while loop.

$i = 1;

do {

    echo "$i ";

    $i++;

} while ($i <= 5);

// Q42. Write a PHP script to print numbers from 1 to 10, but break the loop when the number is 5.

for ($i = 1; $i <= 10; $i++) {

    if ($i == 5) {

        break;

    }

    echo "$i ";

}

// Q43. Write a PHP script to print numbers from 1 to 10, but skip the number 5.

for ($i = 1; $i <= 10; $i++) {

    if ($i == 5) {

        continue;

    }

    echo "$i ";

}

// Ternary Operator

// Q44. Write a PHP script to check if a given number is positive, negative, or zero using a ternary operator.

$number = 5;

$status = ($number > 0) ? "positive" : (($number < 0) ? "negative" : "zero");

echo "The number is $status.";

// Q45. Write a PHP script to check if a given number is even or odd using a ternary operator.

$number = 5;

$parity = ($number % 2 == 0) ? "even" : "odd";

?>