

```

<?php
if (!array_key_exists('x5',$_REQUEST))
{
    $_REQUEST['x5'] = 0;
}
if (!array_key_exists('x4',$_REQUEST))
{
    $_REQUEST['x4'] = 0;
}
if (!array_key_exists('x3',$_REQUEST))
{
    $_REQUEST['x3'] = 1;
}
if (!array_key_exists('x2',$_REQUEST))
{
    $_REQUEST['x2'] = 0;
}
if (!array_key_exists('x1',$_REQUEST))
{
    $_REQUEST['x1'] = -2;
}
if (!array_key_exists('x0',$_REQUEST))
{
    $_REQUEST['x0'] = -5;
}
if (!array_key_exists('acc',$_REQUEST))
{
    $_REQUEST['acc'] = .000001;
}
if (!array_key_exists('guess',$_REQUEST))
{
    $_REQUEST['guess'] = 2;
}

function docalc($x5, $x4, $x3, $x2, $x1, $x0, $acc, $guess)
{
    echo "<div>Function:f(x)= ";
    if ($x5 != 0)
    {
        echo $x5 . "x<sup>5</sup> + ";
    }
    if ($x4 != 0)
    {
        echo $x4 . "x<sup>4</sup> + ";
    }
    if ($x3 != 0)
    {
        echo $x3 . "x<sup>3</sup> + ";
    }
    if ($x2 != 0)

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{
    echo $x2 . "x<sup>2</sup> + ";
}
if ($x1 != 0)
{
    echo $x1 . "x + ";
}
echo $x0 . " </div>\n";

echo "<div>Accuracy: " . number_format($acc,10) . "</div>\n";
echo "<div>Guess: " . $guess . "</div>\n";
echo "<br>\n";

$x_cur = $guess;

$count = 0;

echo "<table>\n";
echo "<colgroup>\n";
echo "<col span='1' style='width: 20%;'>\n";
echo "<col span='1' style='width: 40%;'>\n";
echo "<col span='1' style='width: 40%;'>\n";
echo "</colgroup>\n";

echo "<td>Iterations</td>\n";
echo "<td>x</td>\n";
echo "<td>Accuracy</td>\n";

while(1)
{
    $count++;
    if ($count > 100000)
    {
        echo "<div>Bad Starting Guess</div>\n";
        break;
    }
    $x_new = $x_cur - calc_func($x_cur, $x5, $x4, $x3,
    $x2, $x1, $x0)/calc_derivative($x_cur, $x5, $x4, $x3, $x2, $x1);
    echo "<tr>\n";
    echo "<td>" . $count . "</td>\n";
    echo "<td>" . $x_new . "</td>\n";
    echo "<td>" . abs($x_new-$x_cur) . "</td>\n";
    if (abs($x_new-$x_cur) < $acc)
    {
        break;
    }
    $x_cur = $x_new;
}

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        echo "</table>\n";
        echo "<div>x=" . $x_new . " after " . $count . " iterations</
div>\n";
        echo "<div>f(x)=" . calc_func($x_new, $x5, $x4, $x3, $x2, $x1,
$x0) . "<div>\n";
    }

function calc_func($x, $x5, $x4, $x3, $x2, $x1, $x0)
{
    $v = $x5*pow($x,5) + $x4*pow($x,4) + $x3*pow($x,3) +
    $x2*pow($x,2) + $x1*$x + $x0;
    return($v);
}

function calc_derivative($x,$x5, $x4, $x3, $x2, $x1)
{
    $v = 5*$x5*pow($x,4) + 4*$x4*pow($x,3) + 3*$x3*pow($x,2) +
    2*$x2*$x + $x1;
    return($v);
}

?>
<html>
<body>
<form action="" method="post">
<table>

<div>
Newton's Method
</div>
<br/>
<tr>
<td>
<input type="number" step="any" id="x5" name="x5" value="<?php echo
$_REQUEST['x5'];?>" >
</td>
<td>
X<sup>5</sup>
</td>
</tr>

<tr>
<td>
<input type="number" step="any" id="x4" name="x4" value="<?php echo
$_REQUEST['x4'];?>" >
</td>
<td>
X<sup>4</sup>
</td>
</tr>

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<tr>
<td>
<input type="number" step="any" id="x3" name="x3" value="<?php echo
$_REQUEST['x3'];?>" >
</td>
<td>
X<sup>3</sup>
</td>
</tr>
```

```
<tr>
<td>
<input type="number" step="any" id="x2" name="x2" value="<?php echo
$_REQUEST['x2'];?>" >
</td>
<td>
X<sup>2</sup>
</td>
</tr>
```

```
<tr>
<td>
<input type="number" step="any" id="x1" name="x1" value="<?php echo
$_REQUEST['x1'];?>" >
</td>
<td>
X<sup>1</sup>
</td>
</tr>
```

```
<tr>
<td>
<input type="number" step="any" id="x0" name="x0" value="<?php echo
$_REQUEST['x0'];?>" >
</td>
<td>
Const
</td>
</tr>
```

```
<tr>
<td>
<input type="number" step="any" id="acc" name="acc" value="<?php echo
number_format($_REQUEST['acc'],10);?>" >
</td>
<td>
Accuracy
</td>
</tr>
```

```
<tr>
<td>
<input type="number" step="any" id="guess" name="guess" value="<?php
echo $_REQUEST['guess'];?>" >
</td>
<td>
Guess
</td>
</tr>
```

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</table>
<br/>
<input type="submit" value="Calculate" id="calc" value="calc" />
</form>
<?php
```

```
$x5 = $_REQUEST['x5'];
$x4 = $_REQUEST['x4'];
$x3 = $_REQUEST['x3'];
$x2 = $_REQUEST['x2'];
$x1 = $_REQUEST['x1'];
$x0 = $_REQUEST['x0'];
$acc = $_REQUEST['acc'];
$guess = $_REQUEST['guess'];
```

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echo "<div>";
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if ($_SERVER['REQUEST_METHOD'] == 'POST')
{
    docalc($x5, $x4, $x3, $x2, $x1, $x0, $acc, $guess);
}
else
{
    echo "Enter/Update Values and press Calculate\n";
}
echo "</div>\n";
?>
</body>
</html>
```