Note that artificial division is done.
The total of the two powers of each term is 4.

The first term is x^4, then x^3y, then x^2y^2, then xy^3, and finally y^4.

As explained in my response, the middle three terms all are there, but with a 0 in front.

```
                1 1 1 1   R 2
1 -1 | 1 0 0 0 1
     - (1 -1)
       -------
         1 0
       -(1 -1)
         -------
           1 0
         -(1 -1)
           -------
             1 1  Do subtracting, bring down 1.
           -(1 -1)
             -------
               2
```

Do subtracting, bring down next 0.

Do subtracting, bring down next 0.

So the answer of $x^4 + y^4$ divided by $x - y$ is

$x^3 + x^2y + xy^2 + y^3$, Remainder $2/(x-y)$.