**Ex:**

```matlab
function sys_out = conv_v(sys_in,imp_resp)

    sys_in2 = [sys_in, zeros(1,length(imp_resp)-1)];
    for ind = 1:length(sys_in);
        sys_out(ind) = sum(sys_in2(ind:ind+length(imp_resp)-1)...
            .* imp_resp(end:-1:1));
    end
end
```

For the above Matlab® function, find the result of the following commands:

```matlab
>> vin = [3, 2, 6, 2, 8, 0, 1];
>> h = [1, 0, -1];
>> vout = conv_v(vin,h)
```

**Sol’n:**

```matlab
>> vin = [3, 2, 6, 2, 8, 0, 1];
>> h = [1, 0, -1];
>> vout = conv_v(vin,h)

vout =
    3     0     2    -2    -7     0    -1
```

Explanation:
Inside the function, the input array (vin) is called sys_in2 and gets
% lengthened by adding two zeros.
```
sys_in2 =
    3     2     6     2     8     0     1     0     0
```
Inside the for loop, three values at a time are extracted from the input array. The first time through, we have
```
sys_in2(ind:ind+length(imp_resp)-1) = [3, 2, 6]
```
The imp_resp variable is h in reverse: imp_resp = [-1, 0, 1]
The three values from imp_resp are multiplied element-by-element with
the three values extracted from vin and summed.
```
sum([3, 2, 6] .* [-1, 0, 1]) = sum(3, 0, 6) = 3
```
The next time through the loop, vin is shifted one step to the right, and
the values extracted are [2, 6, 2], and the rest of the process is carried out as above.