

Purpose Evaluate a polynomial with a matrix argument. The matrix must be square.

Syntax `y = polyvalm(p0,M)`

Description The command
`y = polyvalm(p0,M)`
returns the value of a polynomial p0 in a matrix M.

Examples Consider the polynomial `p0 = 1 + 3*s + 2*s^2 + 8*s^3 - 5*s^4 + s^5;`
and find a value of this polynomial in a matrix `M = [1 2 3; 4 5 6; 7 8 9];`.

We use the `polyvalm` function to obtain the value of the polynomial in the matrix:

```
y = polyvalm(p0,M)
```

```
y =
```

```
      87832      107934      128037  
     198936      244438      289938  
     310041      380940      451840
```

Algorithm Matrix version of Horner scheme.

Diagnostics The macro `polyvalm` displays an error messages if

- the input argument inconsistency
- the matrix M is not square

See also `polyval` Evaluate a polynomial matrix at a given set of points.
`polyfit` Fit a polynomial matrix to data.