



MATLAB for Finance

3 System Functions



System Functions

✚ Elementary Functions

`help elfun`

✚ Special Functions

`help specfun`

✚ Mathematics Functions

`help elmat`

✚ e.g.

`B = magic(4)`

✚ Where is the *getting started online?*



Some System Functions

- ✚ `sin, cos, tan`
- ✚ `sqrt, isreal, log, log10, pow2`
- ✚ `fix, round, floor, ceil`
- ✚ `gamma, factor, isprime, primes, gcd, lcm, perms, nchoosek, factorial`
- ✚ `zeros, ones, nan, eye, rand, randn`
- ✚ `size, numel, disp, isempty, repmat, reshape, rot90`
- ✚ `diag, tril, triu, fliplr, flipud, :, find, end,`
- ✚ `isscalar, isvector, isnan, isinf, isfinite,`



Function and expression

✚ Creating a vector:

```
y = [nan 5 8 12 inf]
```

```
X = 0:pi/10:pi
```

✚ Logical vector (0=doesn't match the condition, 1=match the condition):

```
y(isfinite(y))
```

✚ Pseudo-random matrix:

```
R = rand(4);    rand('seed', 0)
```

✚ Hiding the echo:

```
M = C * (1 + r * t);
```

Logical Operators

⊕ Operator:

- ⊞ > greater than
- ⊞ < less than
- ⊞ >= greater than or equal to
- ⊞ <= less than or equal to
- ⊞ == equal to
- ⊞ ~= not equal
- ⊞ ~ not (unary operator)

⊕ Functions:

- ⊞ is*
- ⊞ find



Homeworks

Challenge 1

- ❏ View Adams and Reitich's slides at url:
<https://umconnect.umn.edu/fmpresentation1>
- ❏ Solve the linear system of equations in slide 13 with MATLAB
- ❏ What are the proper commands to do that in MATLAB?