GNU**OCTAVE**CARD

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1 The very basics

`+` | `-` | `*` | `/` | `^` | `pi` | `i` | `inf` | `eps` | `sin` | `cos` | `tan` | `exp` | `log` | `log10` | `abs` | `sqrt` | `sign` | `round` | `ceil` | `floor` | `fix` | `=` | `,` | `;` | `who` | `clear` | `help` | `lookfor`

```
Example> x = pi / 2, y = floor (sin (x)), z = log (exp (2013)), y / z ↵
```

2 Vectors and matrices

`:` | `.*` | `./` | `.^` | `'` | `.'` | `\` | `length` | `numel` | `size` | `zeros` | `ones` | `eye` | `diag` | `rand` | `det` | `trace` | `inv` | `lu` | `eig` | `cond` | `expm`

```
Example> x = 1:5, x(:), x(2:4), A = [11, 12; 21, 22], A(1,1:end) ↵
```

3 Graphics

`plot` | `semilogx` | `semilogy` | `loglog` | `contour` | `quiver` | `surf` | `mesh` | `meshgrid` | `xlabel` | `ylabel` | `zlabel` | `title` | `grid` | `axis` | `hold` | `subplot` | `figure` | `print`

```
Example> t = 0:0.01*pi:21*pi; x = sin (t).*(exp (cos (t)) - 2*cos (4*t) + sin
(t/12).^5); y = cos (t).*(exp (cos (t)) - 2*cos (4*t) + sin (t/12).^5); plot(x, y) ↵
```

4 Scripts and functions

`@` | `function` | `return` | `nargin` | `nargout` | `varargin` | `varargout` | `feval` | `eval`

```
Example> f = @(x) x.^2, f(1:10) ↵
Example> function v = cossum (x, n) v = cumsum (repmat (cos (x), 1, n));
```

5 Programming elements

`==` | `>` | `<` | `>=` | `<=` | `!=` | `|` | `||` | `&` | `&&` | `!` | `if` | `else` | `elseif` | `for` | `while` | `end` | `break` | `continue` | `pause`

```
Example> for i = 1:5 if (i < 3) disp (i) else disp (i^2) end end ↵
```