PARAMETRICS

BASIC

Let $f(x) = 2x - 1$

$X_{1T} = T$

$Y_{1T} = 2T-1$

Mode	Para
TMAX	0
TMIN	4
TSTEP	.1
XMIN	-5
XMAX	5
YMIN	-5
YMAX	5

Change Tstep and Tmax, Tmin.
What changes?

SPIDER AND THE FLY

The spider is 1T

$$X_{1T} = -2 + T$$
$$Y_{1T} = 5 - 2T$$

The fly is 2T

$$X_{2T} = 1 - T$$
$$Y_{2T} = 1 + T$$

MODE: Rad Para Simul
WINDOW: [-5,5] by [-5,8]
$0 \leq T \leq 5$ Tstep .05

Explore the path of the spider and the fly by using trace with the up and down arrow keys.

DOES THE SPIDER CATCH THE FLY? WHY? OR WHY NOT?

THE RACE

The turtle and the hare.

The hare wanted to have a fair race with the turtle, since he can sprint at 24 ft/sec while the very best that the turtle can do is 18 ft/sec.. The hare gives the turtle a 15 ft hear start.

a) If they race for 50 feet, who wins the race?
b) If they race for 75 feet, who wins the race?
c) Who is ahead at 3 sec.?
d) At what time does the hare over take the turtle?

Parametrics can be used to model the race.

$X_{1T} = 18T + 15$
$Y_{1T} = 3$

$X_{1T} = 24T$
$Y_{1T} = 5$

Mode: Par Simul

Find a good window with a Tstep of .01.

UNIT CIRCLE WITH TRIG FUNCTIONS

$X_{1T} = \cos T$	$0 \le T \le 2\pi$	Tstep .01
$Y_{1T} = \sin T$	$-2 \le X \le 2\pi$	Xscl .5
$X_{2T} = T$	$-2.43 \le Y \le 2.43$	Yscl 1
$Y_{2T} = \cos T$		