

CHAPTER Eight: PARAMETRIC EQUATIONS 8.1

AND TRIGONOMETRY

PARAMETRIC EQUATIONS: A PAIR OF EQUATIONS USED TO SEPARATELY DESCRIBE THE X AND Y COORDINATES OF A POINT AS FUNCTIONS OF A THIRD VARIABLE, CALLED THE PARAMETER.

MODE: PARAMETRIC

$$Y = \begin{cases} X_{1T} = \cos(T) \\ Y_{1T} = \sin(T) \end{cases}$$

WINDOW: T MIN = 0

$$T \text{ MAX} = 360$$

$$T \text{ STEP} = 1$$

$$X \text{ MIN} = -2.25$$

$$X \text{ MAX} = 2.25$$

$$X \text{ SCL} = 0.5$$

$$Y \text{ MIN} = -1.5$$

$$Y \text{ MAX} = 1.5$$

$$Y \text{ SCL} = 0.5$$

TABLE SETUP

$$T_{\text{B1START}} = 0$$

$$\Delta T_{\text{B1}} = 1$$

AUTO

AUTO

EDIT TSTEP

EDIT - 0

EDIT TMAX

Cosmo Clock

MODE: FUNCTION

$$Y = 50 \sin(24(x + 11.25)) + 62.5 \quad \text{HEIGHT}$$

$$50 \cos(24(x + 11.25)) \quad \text{HORZ POSITION}$$

WINDOW: $X_{\min} = 0$

$X_{\max} = 15$

$X_{\text{scl}} = 1$

$Y_{\min} = -60$

$Y_{\max} = 120$

$Y_{\text{scl}} = 10$

MODE: PARAMETRIC

$$Y = X_{1T} = 50 \cos(24(T + 11.25))$$

$$Y_{1T} = 50 \sin(24(T + 11.25)) + 62.5$$

WINDOW: $T_{\min} = 0$ $X_{\min} = -90$ $Y_{\min} = -10$

$T_{\max} = 15$ $X_{\max} = 90$ $Y_{\max} = 120$

$T_{\text{step}} = 0.1$ $X_{\text{scl}} = 10$ $Y_{\text{scl}} = 10$