

67 (a) Graph the following in the specified window. See *Figure 67a*.

$$Y_1 = 3(\cos(6,000,000X))^2, \quad Y_2 = 3(\sin(6,000,000X))^2 \text{ and } Y_3 = Y_1 + Y_2 \text{ in } [0, 10^{-6}, 10^{-7}] \text{ by } [-1, 4, 1].$$

The total energy E (the sum of L and C) is always 3.

(b) Table Y_1 , Y_2 and Y_3 starting at $x = 0$, incrementing by 10^{-7} . See *Figure 67b*.

The total energy is 3 for all inputs.

(c) $E(t) = 3\cos^2(6,000,000t) + 3\sin^2(6,000,000t) = 3(\cos^2(6,000,000t) + \sin^2(6,000,000t)) = 3(1) = 3$

$[0, 10^{-6}, 10^{-7}]$ by $[-1, 4, 1]$

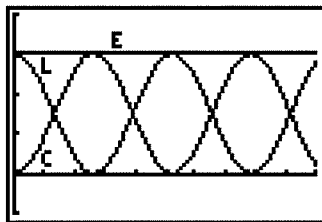


Figure 67a

X	Y_1	Y_2
0	3	0
1E-7	2.0435	.95646
2E-7	.39391	2.6061
3E-7	.15486	2.8451
4E-7	1.6312	1.3688
5E-7	2.9403	.05974
6E-7	2.4125	.58747

$Y_1 = 3(\cos(6000000...$

Figure 67b