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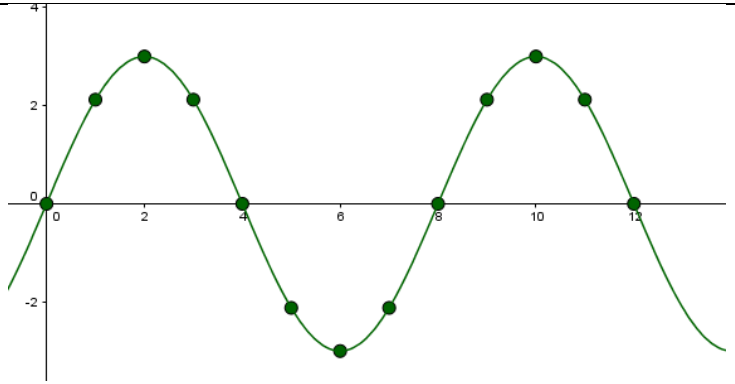
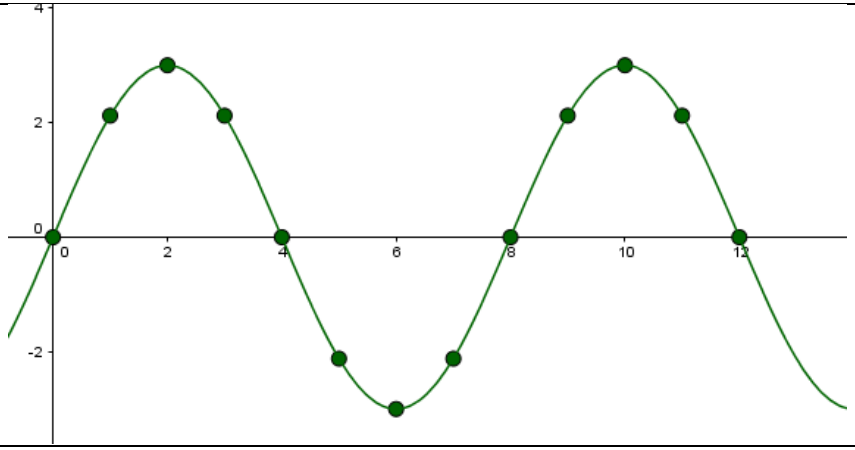
An object is moving in the simple harmonic motion. Its motion can be described by the following function $y = f(t)$, where y is measured in feet and t is measured in second.

(1) How long in time will the object finished a cycle?

(2) How far in distance will the object travel if the object finishes a cycle of motion?

(3) Graph the locations of the object for the first t seconds. (with increment of Δt sec)

$f(t)$	T (sec)	total distance (feet)	first t seconds	Δt	graph
$3\sin(\frac{\pi}{4}t)$	8	12	12	1	
$-6\cos(\frac{2\pi}{3}t)$	3	24	4	1/4	

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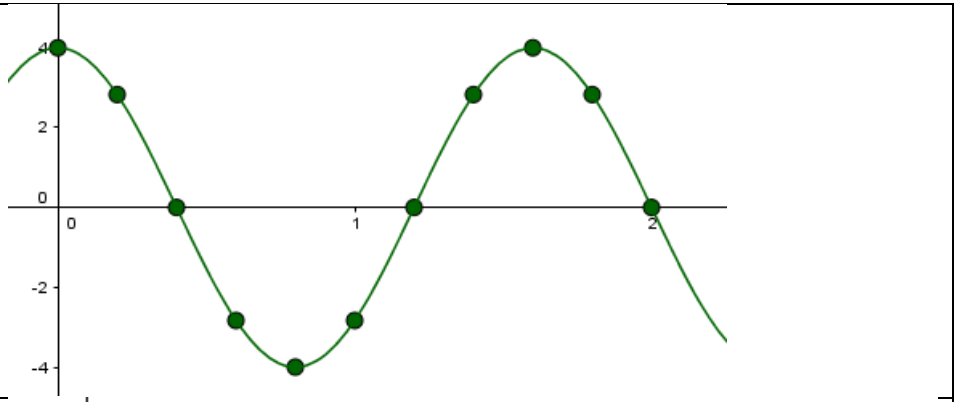
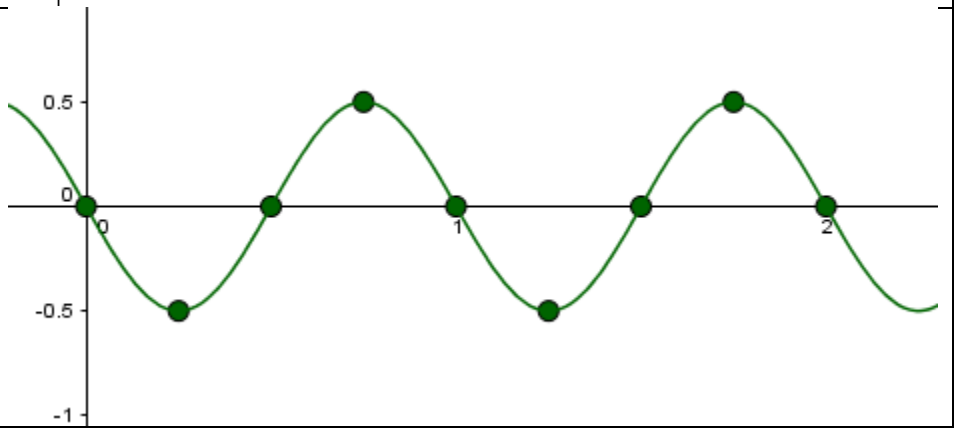
$4\cos(\frac{5\pi}{4}t)$	$\frac{8}{5}$	16	2	$\frac{1}{5}$	
$-\frac{1}{2}\sin(2\pi t)$	1	2	2	$\frac{1}{4}$	

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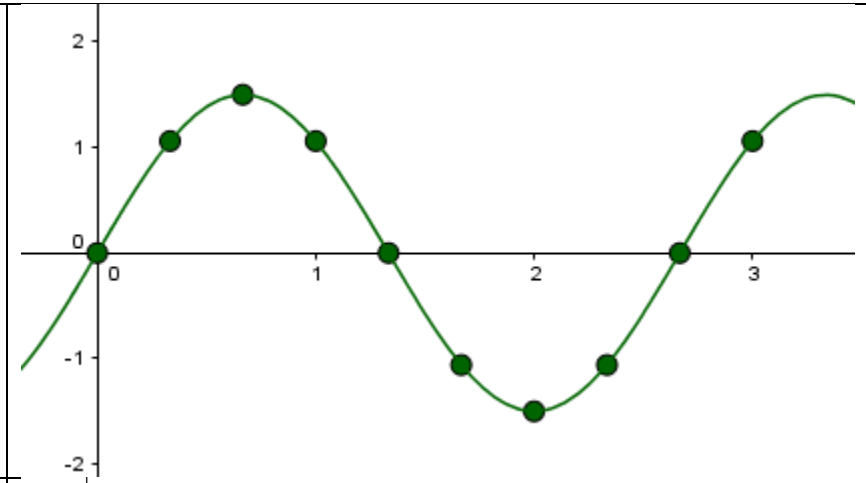
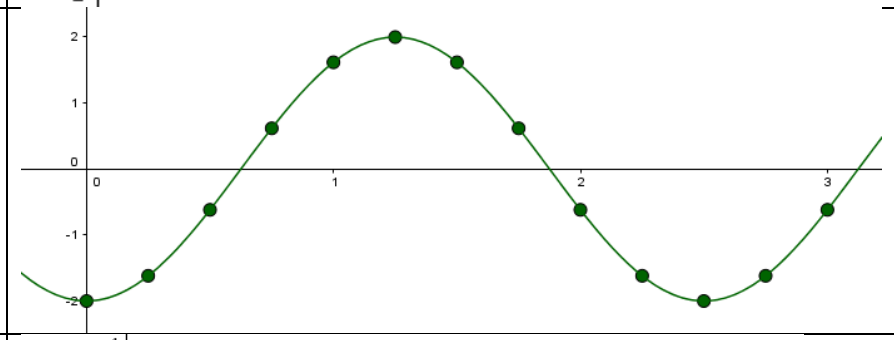
$\frac{3}{2}\sin(\frac{3\pi}{4}t)$	$\frac{8}{3}$	6	3	$\frac{1}{3}$	
$-2\cos(\frac{4\pi}{5}t)$	$\frac{5}{2}$	8	3	$\frac{1}{4}$	
$3\cos(\frac{2\pi}{3}t)$	3	12	4	$\frac{1}{2}$