Use the "Massess and Springs" PhET to explore the amplitude and phase parameters of a simple harmonic oscillator.

Attach a 100g block to each spring.

Let the block on the left oscillate with amplitude $20cm$. Then, make it so the right block oscillates with the same frequency ω_0 but the following parameters:

1. Twice the amplitude and relative phase of zero.

2. Same amplitude and relative phase of $+\pi/2$; also $-\pi/2$

3. Half the amplitude and relative phase $+\pi$; also $-\pi$

4. Same amplitude A and phase $+\pi/4$;

For each situation,

- Plot the position of each block over time. Let the left block be at its maximum displacement at $t = 0$.

- Write an equation that describes the motion of the right block.