

EXAM 4

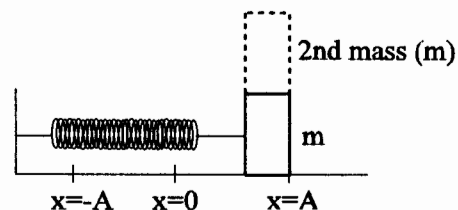
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A. [14 pts.] A mass m is attached to a spring and is oscillating on a frictionless horizontal surface (see figure). At the instant the mass is at an amplitude position a second identical mass is carefully placed on top of the original mass. The oscillating system is now the spring and the two identical masses. Relative to the original spring-single mass system, the new spring-2-mass system oscillates with a ...

In the spaces provided below, enter (I) for increased, (D) for decreased, or (R) remains unchanged, that best completes the above last sentence.

- 1. R amplitude.
- 2. I period.
- 3. D frequency.
- 4. R spring constant.
- 5. D maximum speed.
- 6. R mechanical energy.
- 7. D maximum acceleration.



B. [14 pts.] Suppose you are asked about the absolute pressure at some depth h below the surface of a liquid. The top surface is exposed to the atmosphere on a sunny day in Salt Lake City. For each statement below in the spaces provided, enter I for increase, D for decrease, or R for remains the same, when accounting for what happens to the absolute pressure at the point you are observing.

- 1. I More liquid is added so now the observation point is farther below the surface.
- 2. D The fluid is now exchanged for a less dense fluid. The observation point is at same h .
- 3. I The experiment is moved to New York City, which is at sea level, on a sunny day.
- 4. D The fluid is now seen to be moving with some speed v past the observation point.
- 5. D The observation point is moved closer to the surface of the liquid.
- 6. D The air above the fluid is removed by a vacuum system.
- 7. D The apparatus is moved to a laboratory on the surface of the moon.