

# Physics Midterm

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1. Oscillation is movement or motion that happens at certain intervals that repeats itself.
2. At the angle 0, the pendulum will have the most acceleration because all of the energy is kinetic and there is no more potential energy.
3. We cannot find the maximum velocity in the pendulum due to needing string length.
4. The potential energy of the spring is  $-126\frac{N}{m}$

$$F = kx$$
$$\frac{F}{x} = k$$
$$\frac{-63N}{0.5m} = -126\frac{N}{m}$$

5. The answers are

$$\frac{0.03}{0.06} = 0.5\frac{m}{s}$$
$$0.04 * 500 = 20\frac{m}{s}$$

6. The mass of the object is  $0.22448979591kg$

$$55\frac{N}{m} * 0.04 = 2.2N$$
$$\frac{2.2}{9.8} = 0.22448979591kg$$

7. The periods are

$$0.9144s$$
$$8.421$$