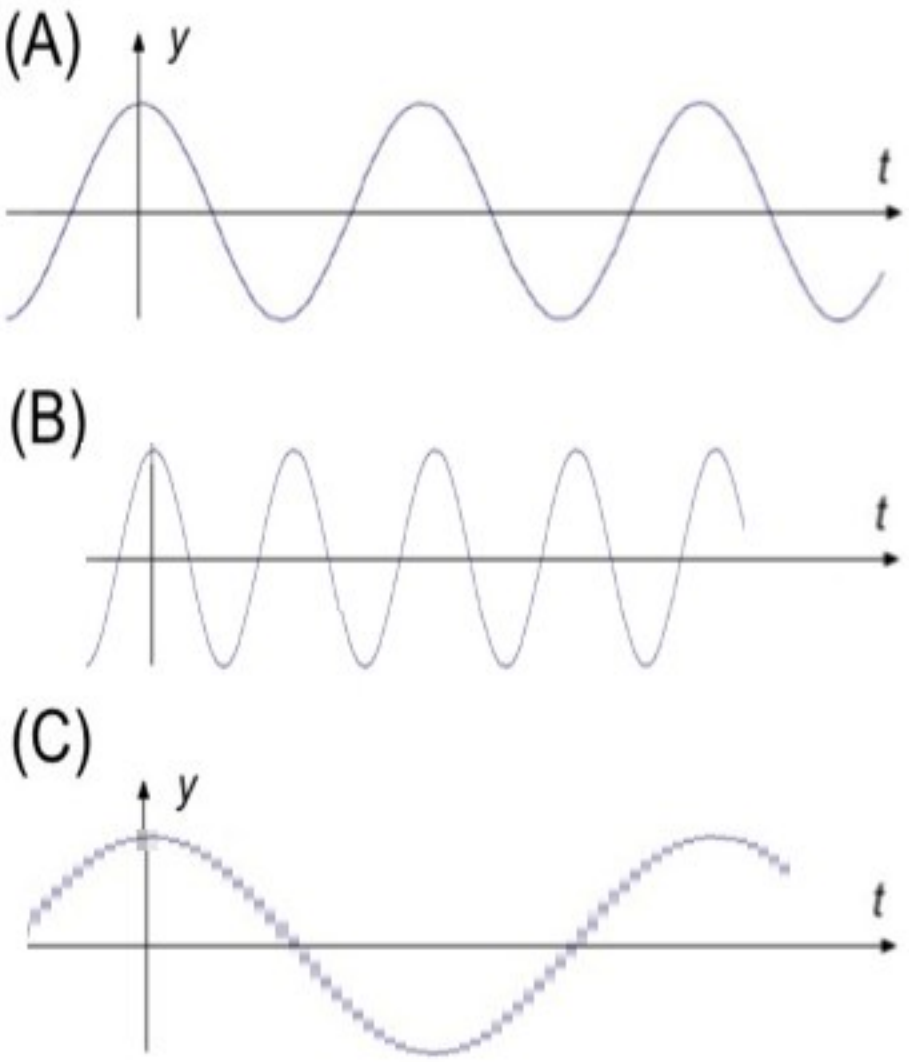


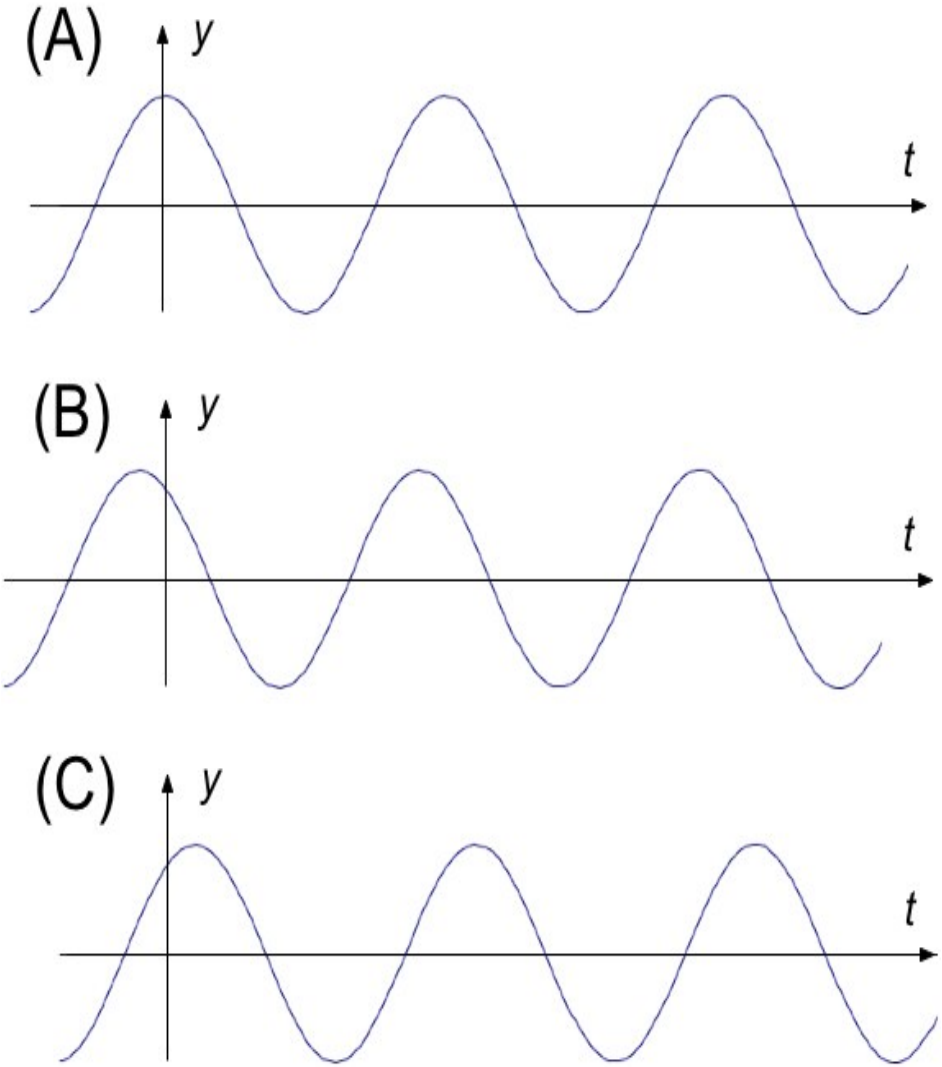
If curve (A) is

$$A\cos(\omega_0 t)$$

which curve is

$$A\cos(2\omega_0 t)?$$

1. (A)
2. (B)
3. (C)
4. None of the above.



Which of these curves is described by

$$A\cos(\omega_0 t + \phi)$$

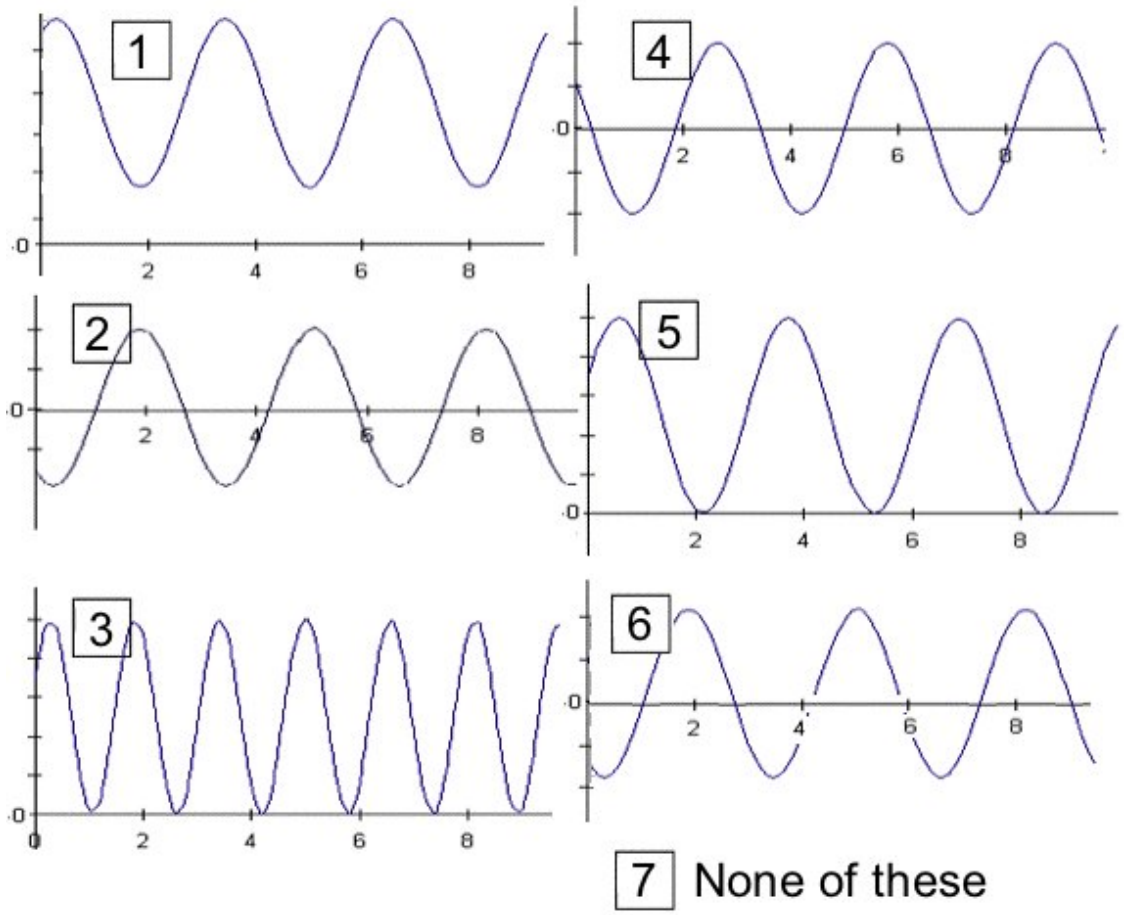
with $\phi > 0$ (and $\phi << 2\pi$)?

1. (A)
2. (B)
3. (C)
4. None of the above.

A mass is hanging from a spring. The position of the mass is measured by a sonic ranger sitting 25 cm under the mass's equilibrium position. At some time, the mass is started oscillating.

At a later time, the sonic ranger begins to take data.

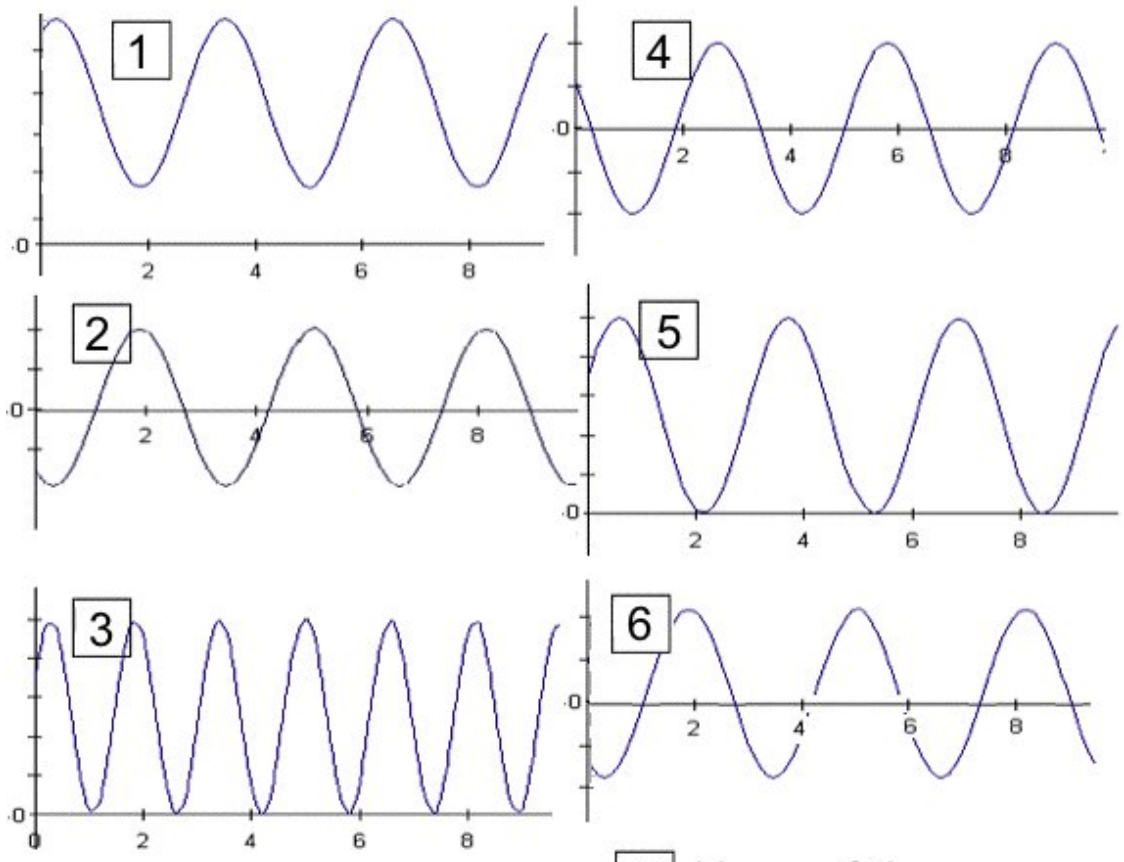
Which graph could represent the **velocity** of the mass?



A mass is hanging from a spring. The position of the mass is measured by a sonic ranger sitting 25 cm under the mass's equilibrium position. At some time, the mass is started oscillating.

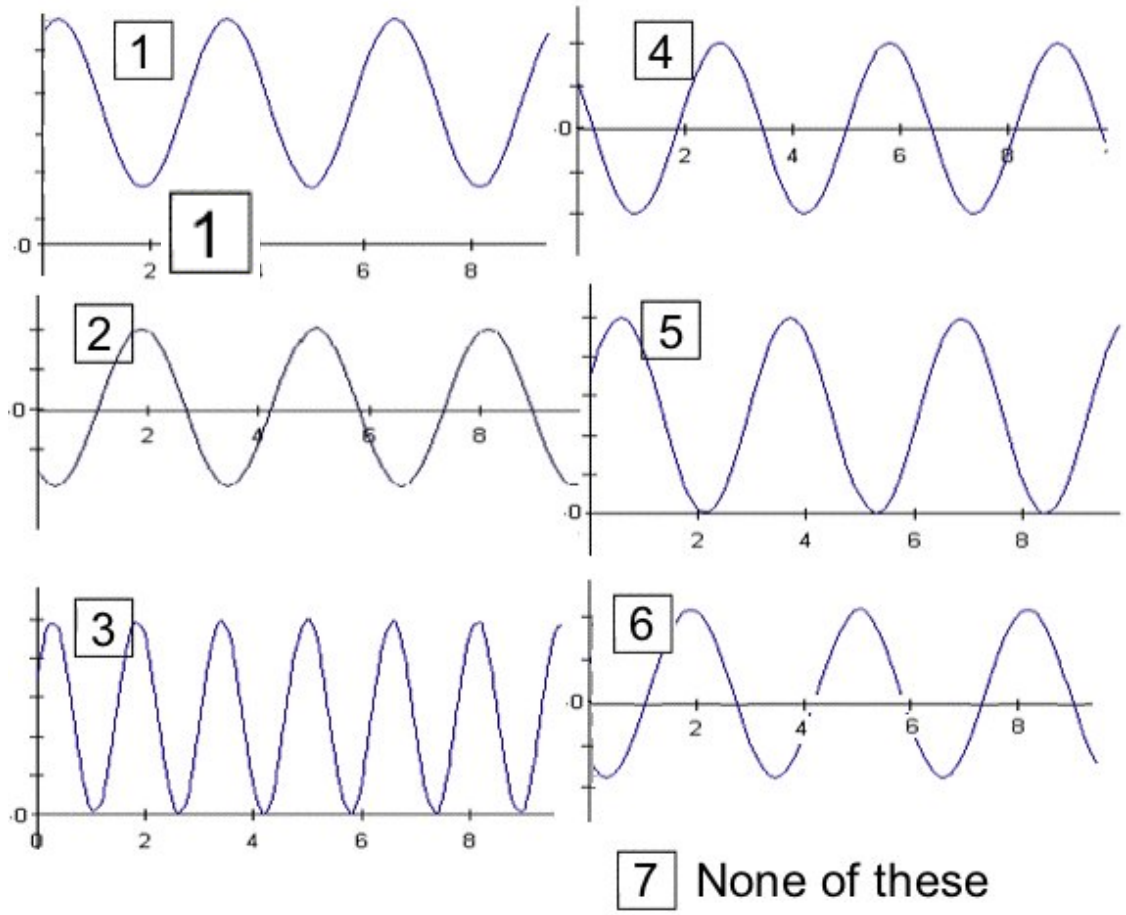
At a later time, the sonic ranger begins to take data.

Which graph could represent the **net force** on the mass?



A mass is hanging from a spring. The position of the mass is measured by a sonic ranger sitting 25 cm under the mass's equilibrium position. At some time, the mass is started oscillating.
At a later time, the sonic ranger begins to take data.

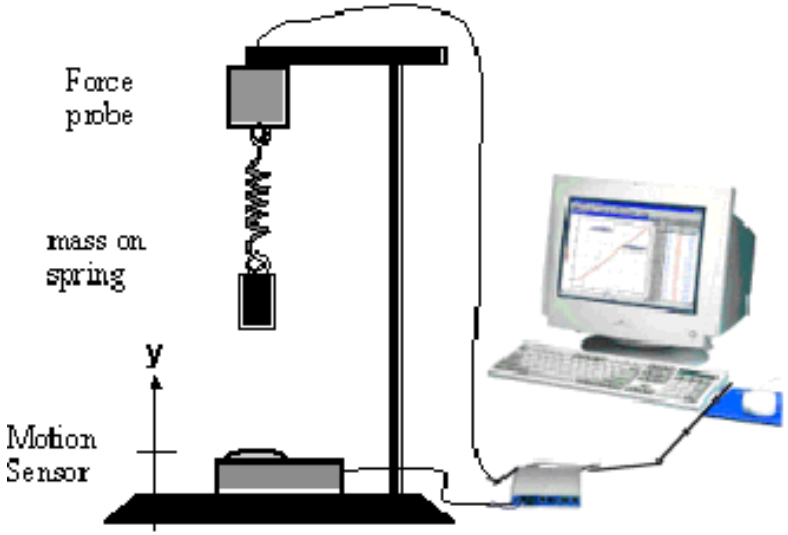
Which graph could represent the **potential energy** of the spring?



When we pull the mass down from its equilibrium, what happens to the energies?

The gravitational PE

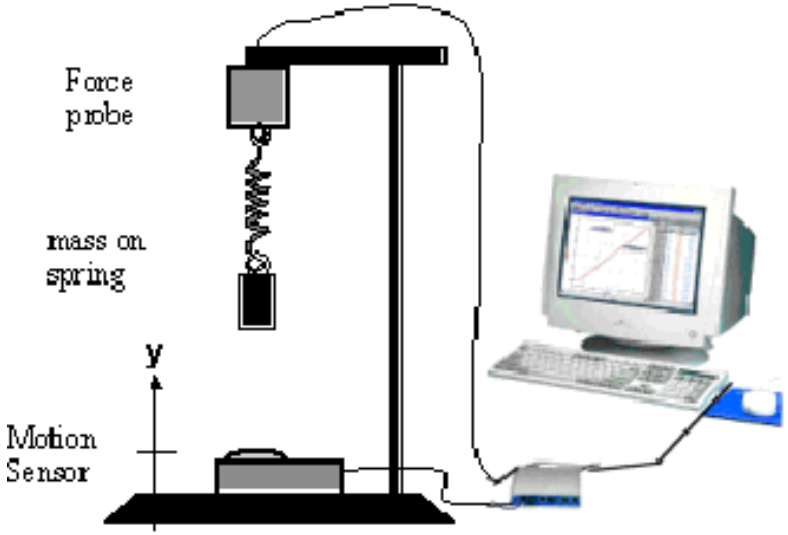
A. increases
B. decreases
C. remains the same
D. you can't tell from the information given.



When we pull the mass down from its equilibrium, what happens to the energies?

The spring PE

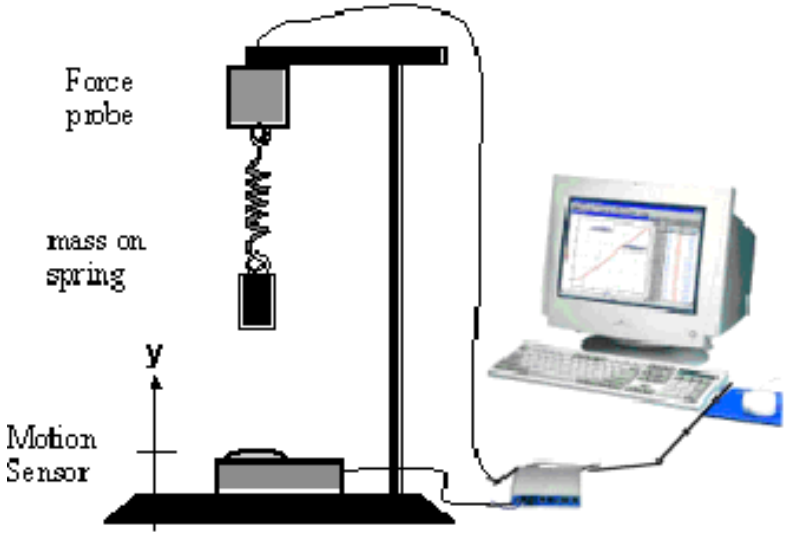
A. increases
B. decreases
C. remains the same
D. you can't tell from the information given.



When we push the mass up from its equilibrium, what happens to the energies?

The gravitational PE

A. increases
B. decreases
C. remains the same
D. you can't tell from the information given.



When we push the mass up from its equilibrium, what happens to the energies?

The spring PE

A. increases
B. decreases
C. remains the same
D. you can't tell from the information given.