

Question 1

Suppose that Zog has two bank accounts and only ever transfers money between them. At various times the balances are as follows:

Date	Checking	Savings
January	\$ 1000	\$0
February	??	\$500
March	\$700	??

How much money does Zog have?

1. \$500
2. \$700
3. \$1000
4. \$1200
5. \$1500
6. \$1700

Question 2

Suppose that one has two bank accounts: a checking and a savings account and one can only transfer money between these accounts. In a particular transaction one transfers money from the checking to savings account.

To which of the following is this *analogous*?

1. A skater slides up a slope. Total energy stays same.
2. A skater slides up a slope. Total energy decreases.
3. A skater slides up a slope. Total energy increases.
4. A skater slides down a slope. Total energy stays same.
5. A skater slides down a slope. Total energy decreases.
6. A skater slides down a slope. Total energy increases.

Question 3

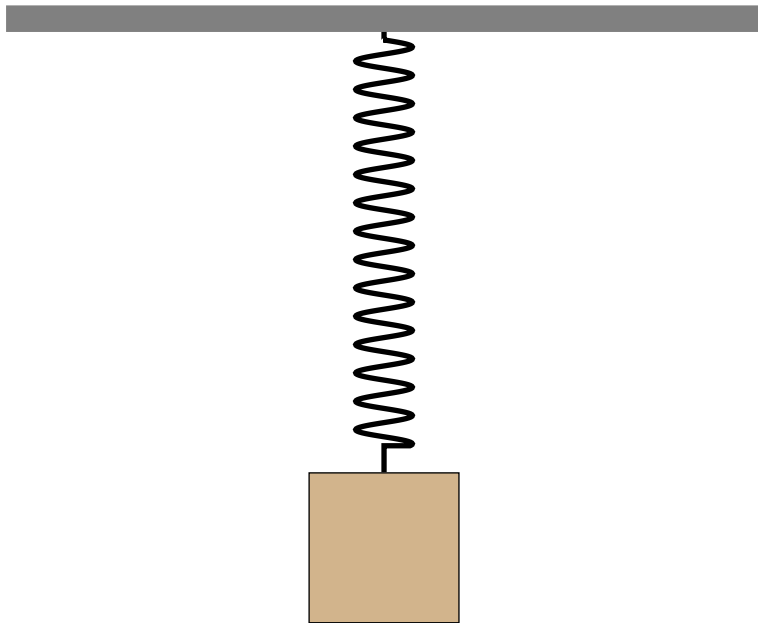
A sled is at the top of an icy slope and is initially at rest. At this point the potential energy of the sled is 1000 J. The sled is released and begins to slide down the slope. At a moment when it is more than halfway down, the kinetic energy of the sled is 700 J.

Ignoring air resistance and friction, which of the following is true for the sled as it slides down the slope?

1. The total energy of the sled is 300 J
2. The total energy of the sled is 700 J
3. The total energy of the sled is 1000 J
4. The total energy of the sled is 1700 J

Question 4

A block is suspended by a spring from the ceiling. The block is pulled down to the level of the floor and released from rest.



Taking the total mechanical energy as $E = KE + PE$ where the potential energy refers to gravitational potential energy, which of the following is true?

1. E stays constant throughout the motion.
2. E decreases constantly after the object is released.
3. E increases constantly after the object is released.
4. E increases and decreases cyclically after the object is released.

Question 5

Consider the PhET Masses and Springs animation. A mass is suspended from a spring and this is stretched. There is no friction.

Which of the following is true just after the spring is released?

1. $E_{\text{elas}} \rightarrow PE + KE$

2. $E_{\text{elas}} \rightarrow PE$

3. $E_{\text{elas}} \rightarrow KE$

4. $E_{\text{elas}} + PE \rightarrow PE + KE$