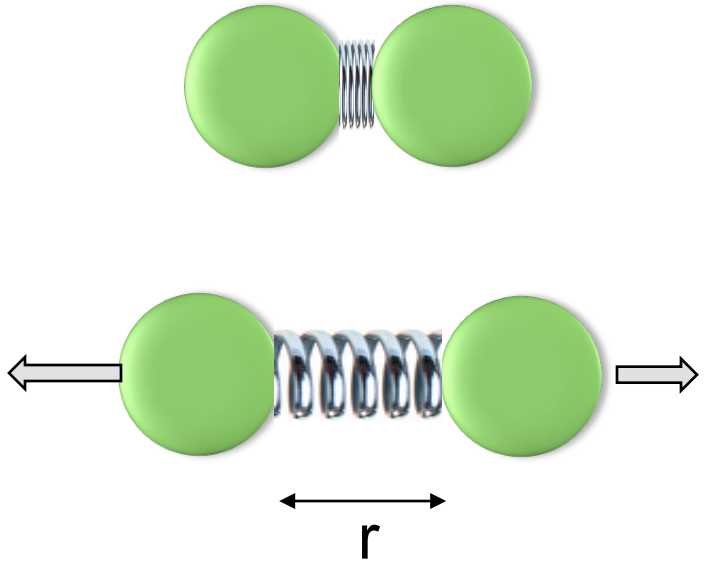
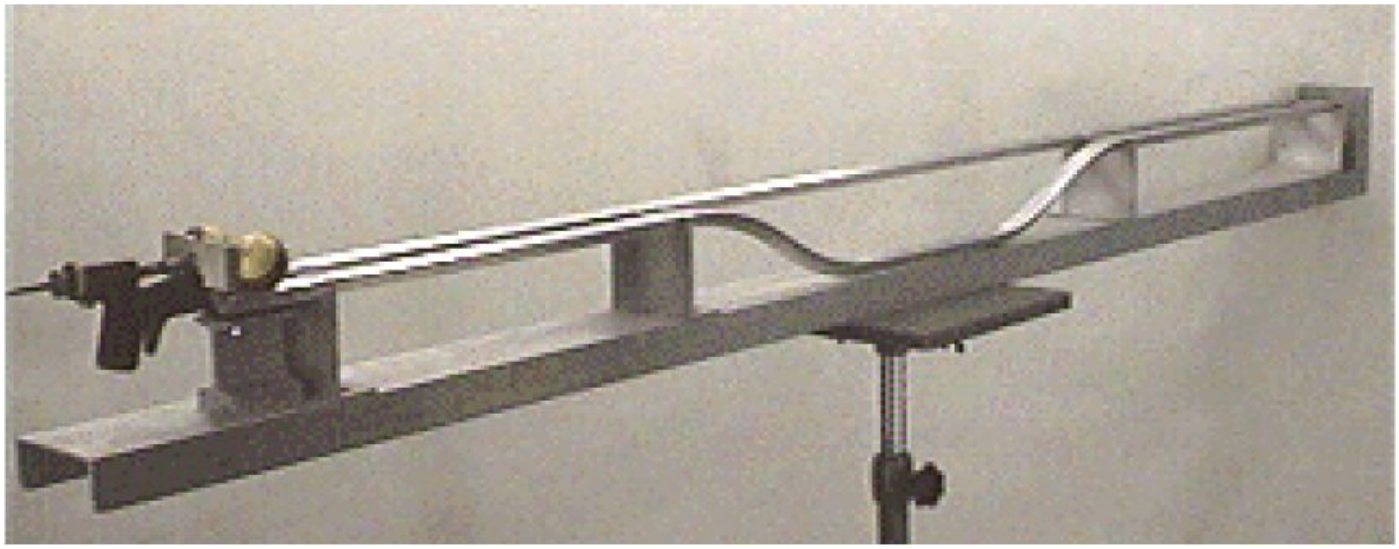
Comparing the “before” state of a compressed spring at rest with the “after” state with the balls moving, which of the following is true

I. The momentum of the system is the same before and after.
II. The total mechanical energy of the system is the same before and after.
III. Both balls have the same momentum and energy in the “after” state

1. I only
2. II only
3. III only
4. I & II
5. I & III
6. II & III
7. I & II & III
8. Not enough information to tell



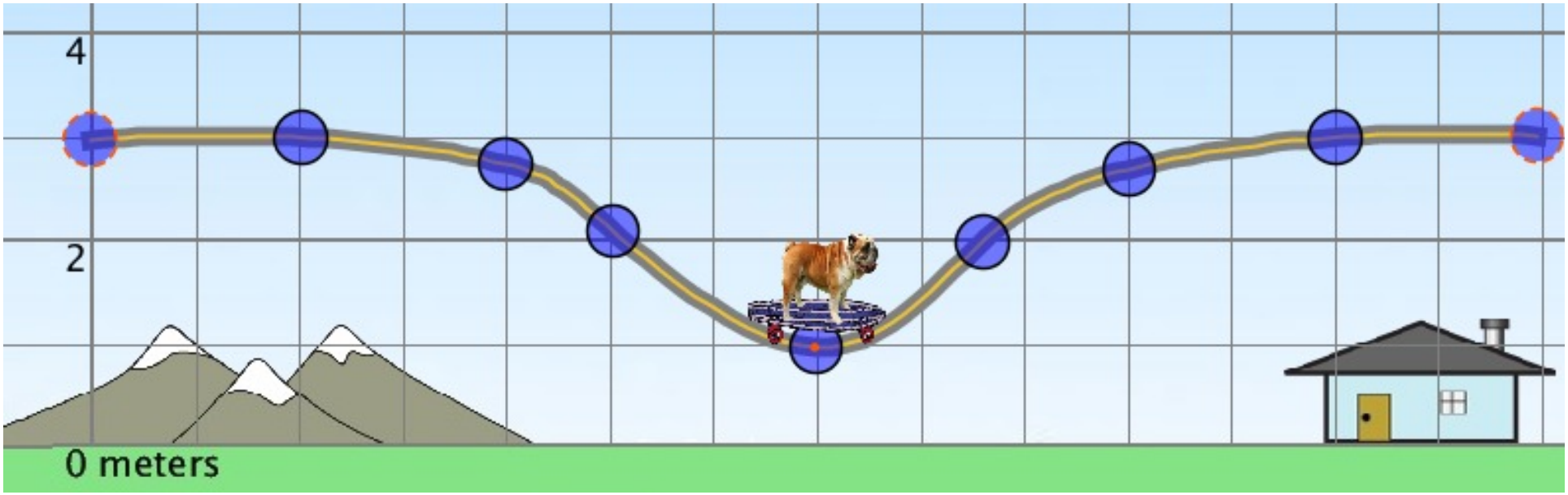
Which ball reaches the end first?



1. The one on the straight track.
2. The one on the dipped track.
3. They both will reach at the same time.

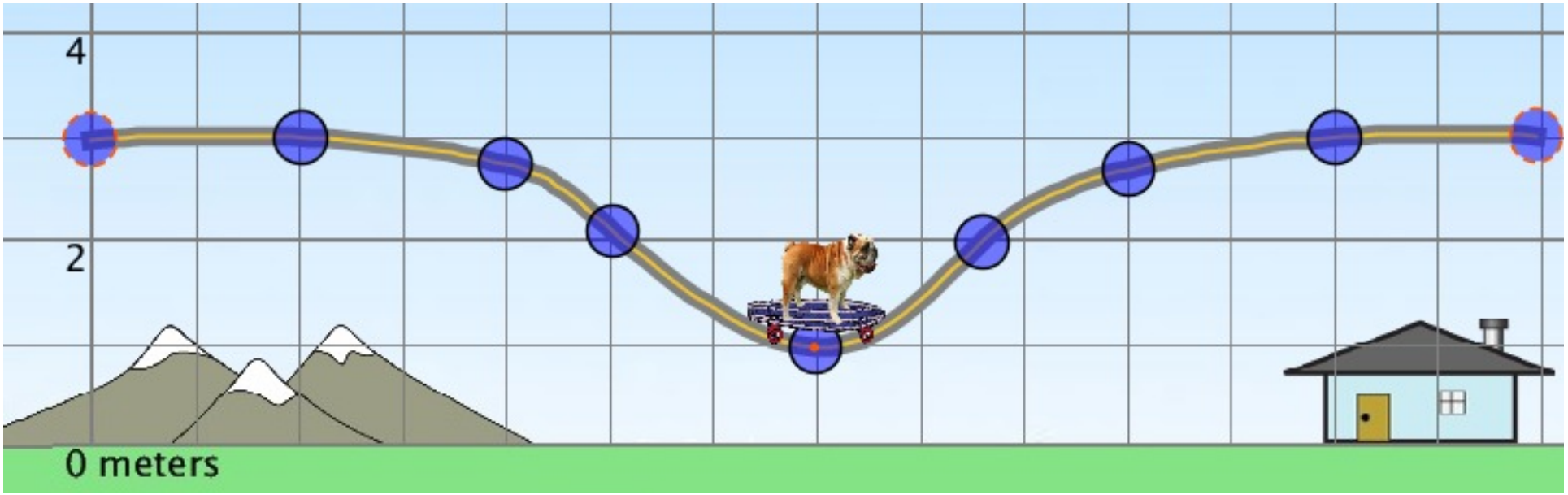
A bulldog on a skateboard is sitting at the bottom of a 2 m dip. **How much KE do you have to give them so they will roll out of the dip?** The bulldog and skateboard combined have a mass of 20 kg. Friction and air drag can be ignored.

1. About 200 Joules
2. About 400 Joules
3. About 600 Joules
4. You can't tell from the information given.



A bulldog on a skateboard is sitting at the bottom of a 2 m dip. **What is their total mechanical energy**? The bulldog and skateboard combined have a mass of 20 kg. Friction and air drag can be ignored.

1. None
2. About 400 Joules
3. About 100 Joules
3. About 600 Joules
4. About -400 Joules
5. You can't tell from the information given.



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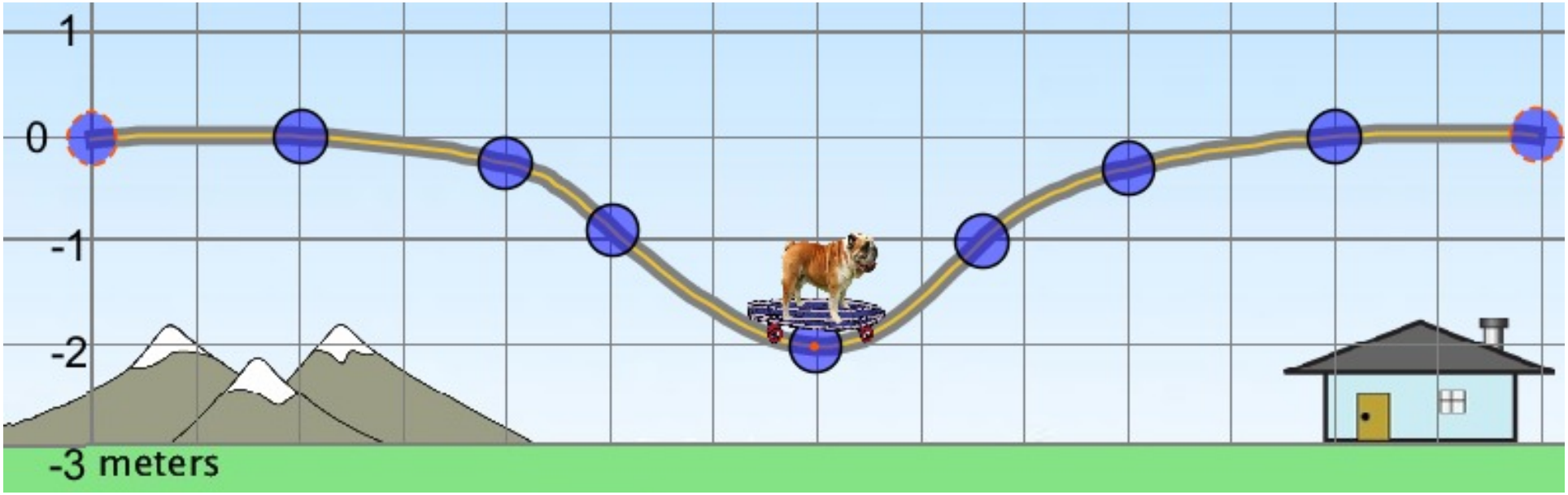

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