

If each object gets
the same momentum,
which has bigger KE?

1. The object
with the
bigger m.
2. The object
with the
smaller m.
3. They have
the same KE.

s. energy

of two interacting
each change in the
to look at the KE



$$\vec{p}_A = \Delta\vec{p}_A = -\Delta\vec{p}_B = -\vec{p}_B$$

$$KE_A = \frac{1}{2} m_A v_A^2 = \frac{1}{2} \frac{(m_A^2 v_A^2)}{m_A} = \frac{p_A^2}{2m_A}$$

$$KE_B = \frac{1}{2} m_B v_B^2 = \frac{1}{2} \frac{(m_B^2 v_B^2)}{m_B} = \frac{p_B^2}{2m_B}$$



A spring-loaded toy dart gun is used to shoot a dart straight up in the air, and the dart reaches a maximum height of 24 m. The same dart is shot straight up a second time from the same gun, but this time the spring is compressed only half as far before firing. How far up does the dart go this time, neglecting friction and air resistance and assuming an ideal spring?

1. 96 m
2. 48 m
3. 24 m
4. 12 m
5. 6 m
6. 3 m
7. Something else

11/26/13

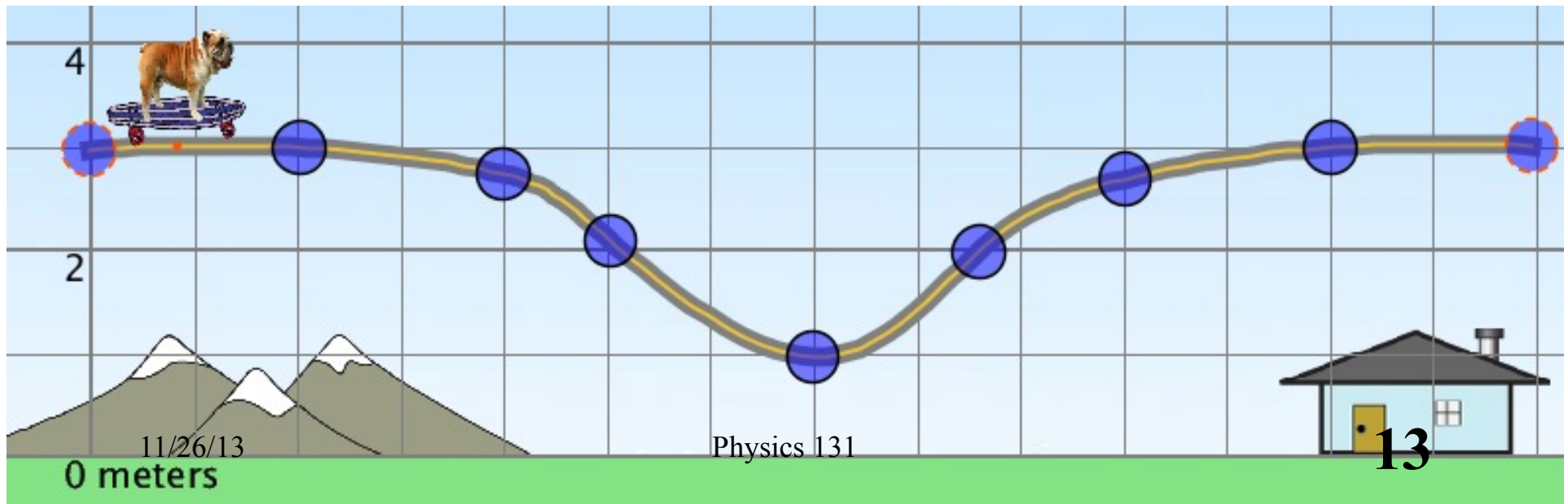
Physics 131



A bulldog on a skateboard is moving very slowly when he encounters a 2 m dip. How fast will he be going when he is at the bottom of the dip? The bulldog and skateboard combined have a mass of 20 kg. Friction and air drag can be ignored.



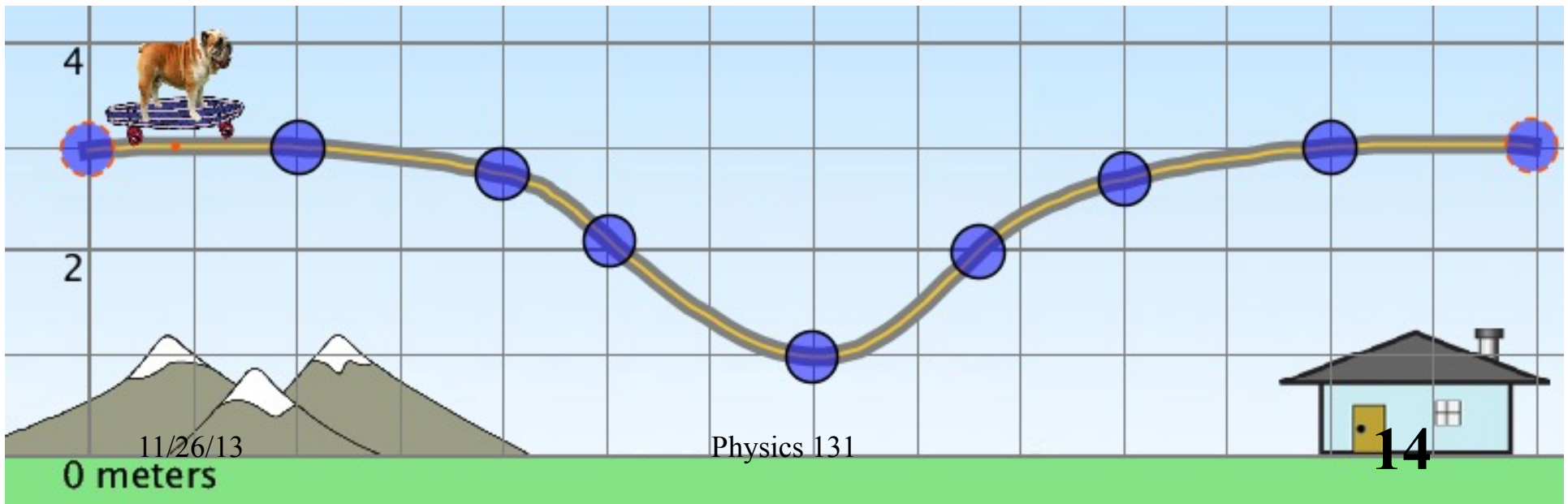
1. Very slowly
2. About 2 m/s
3. About 6 m/s
4. You can't tell from the information given.





A bulldog on a skateboard is moving very slowly when he encounters a 2 m dip. The bulldog and skateboard combined have a mass of 20 kg. What is their total mechanical energy?

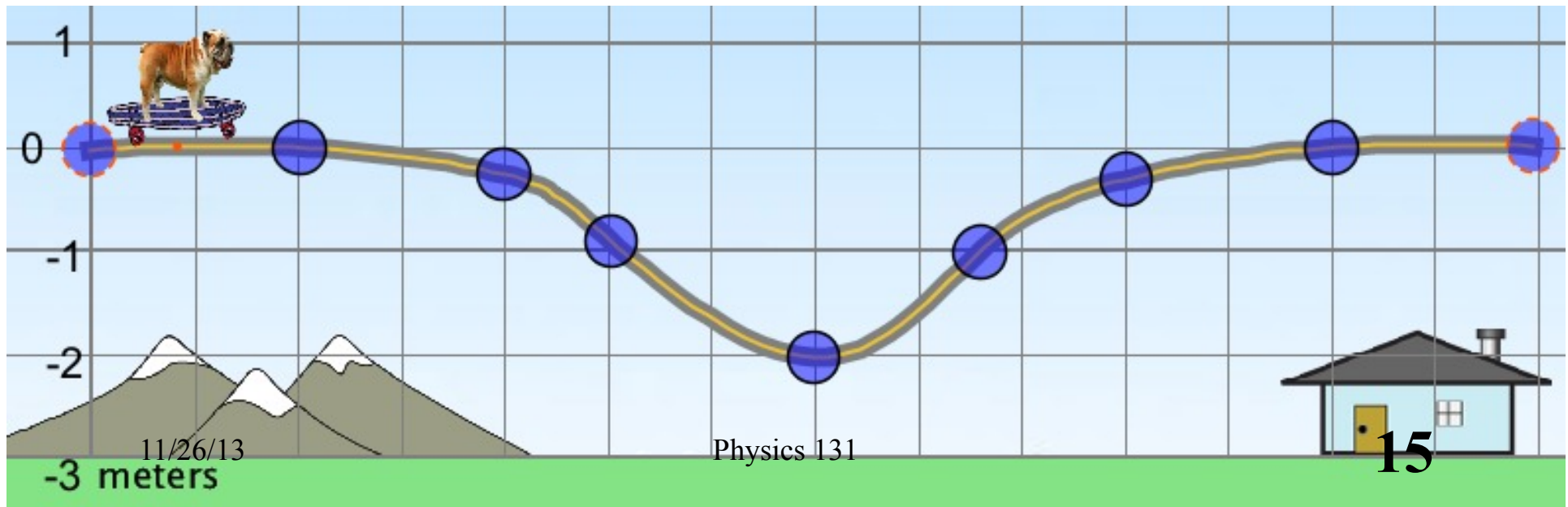
1. Almost zero
2. About 200 Joules
3. About 600 Joules
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