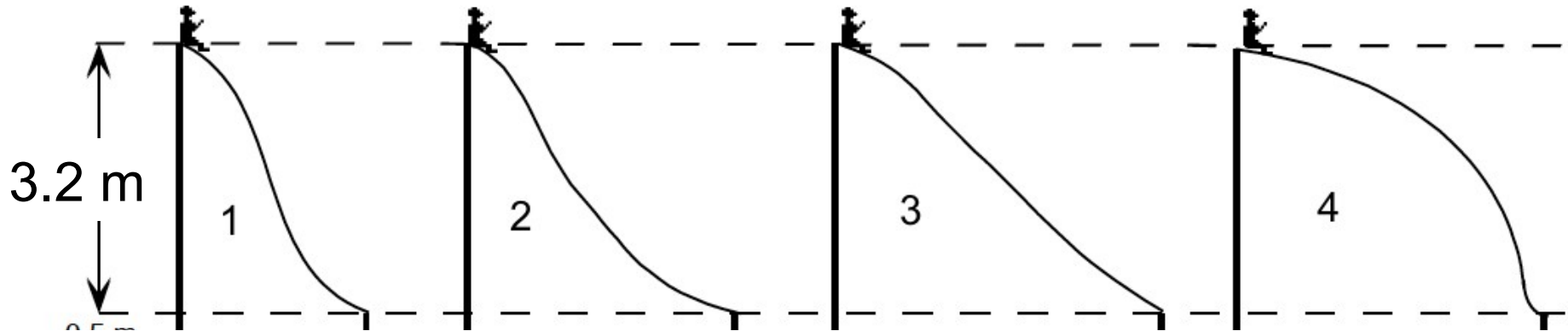A young child wants to select one of the (frictionless) playground slides illustrated below to give her the **greatest possible speed** when she reaches the bottom of the slide. Which should she choose?

3.2 m

1 2 3 4

1. 1

2. 2

3. 3

4. 4

5. She should jump straight down

6. It doesn't matter. It would be the same for each.

A young child wants to select one of the (frictionless) playground slides illustrated below to give her the **shortest possible time** when she reaches the bottom of the slide. Which should she choose?

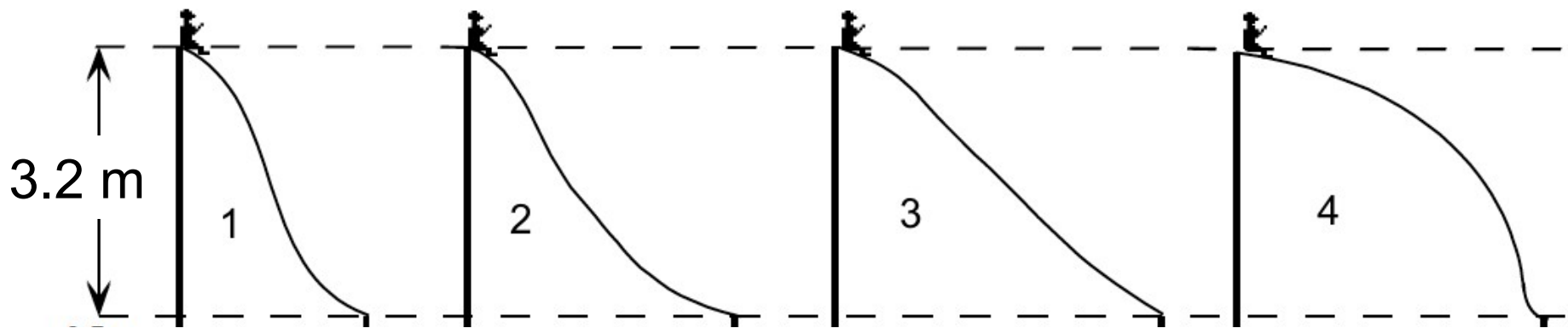3.2 m

1   2   3   4

1. 1

2. 2

3. 3

4. 4
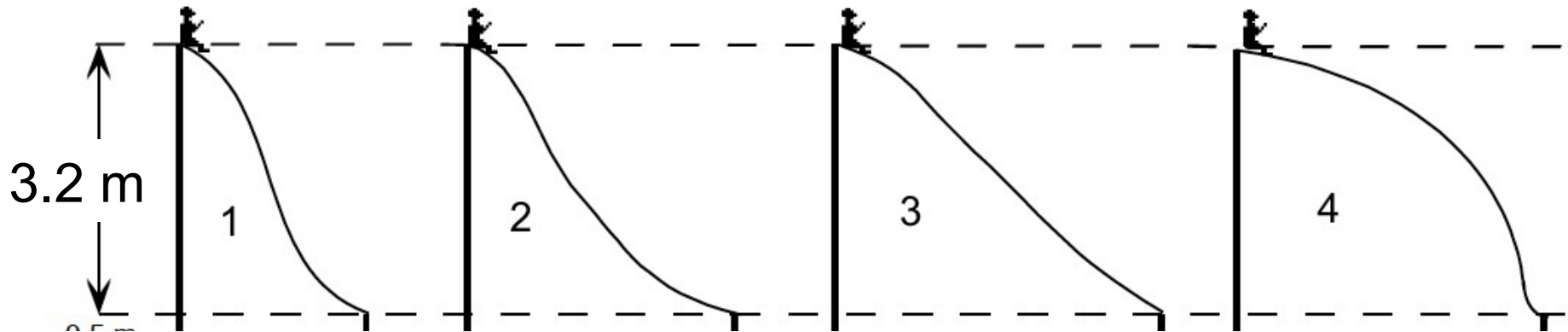
5. She should jump straight down

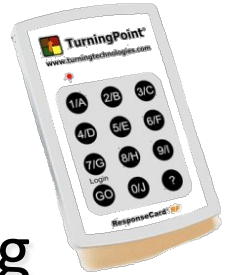6. It doesn't matter. It would be the same for each.

If the child starts from rest at the top of the slide, calculate her speed at the bottom of the slide
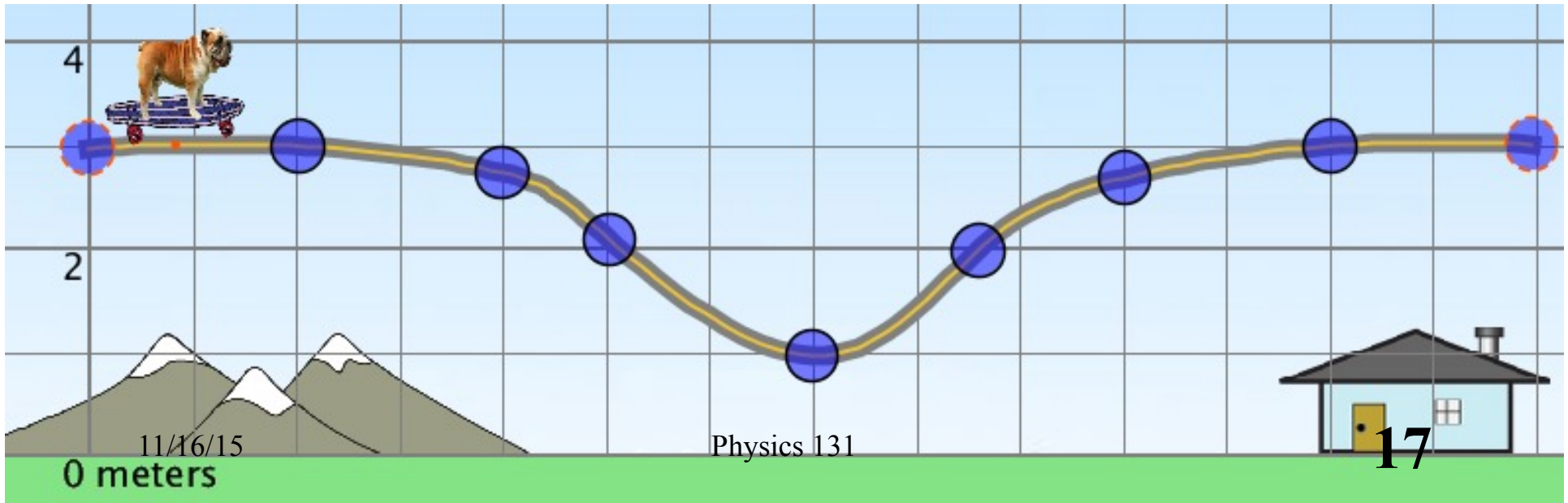
3.2 m

1   2   3   4

1. 16 m/s
2. 32 m/s
3. 8 m/s
4. 4 m/s

5. We don't have enough information to answer.

A bulldog on a skateboard is moving very slowly when he encounters a 2 m dip. How fast will be 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.
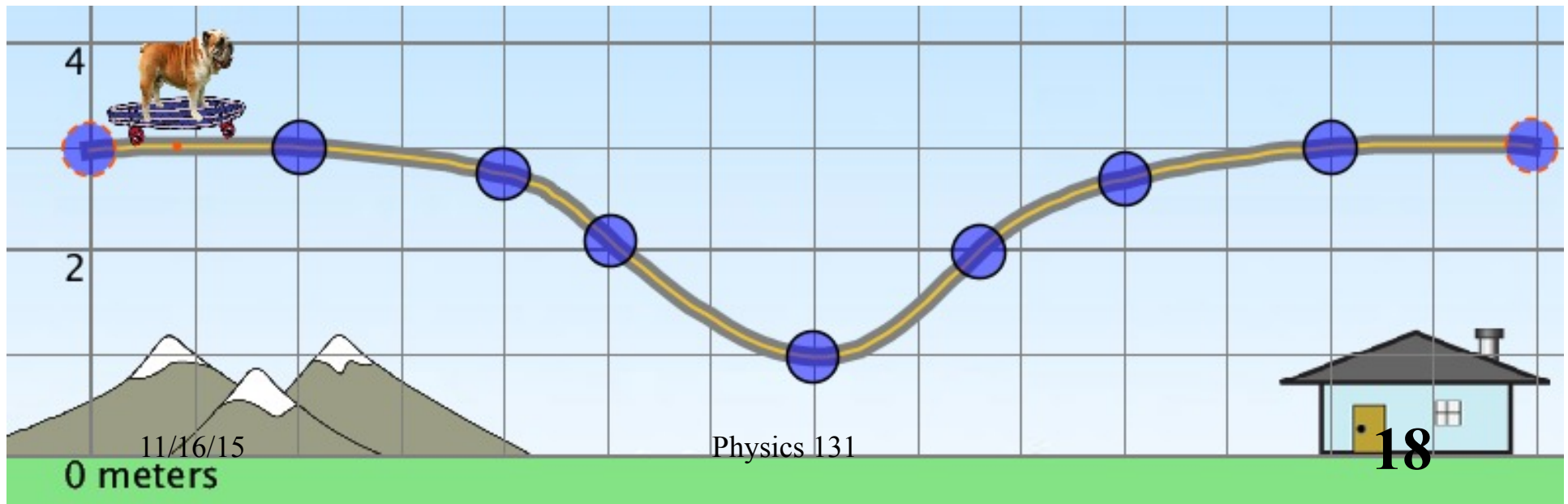
1. Very slowly
2. About 2 m/s

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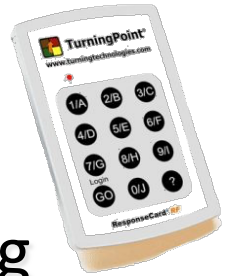
4

2

0 meters

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
4. You can't tell from the information given.

4

2

Physics 131
18
0 meters

A bulldog on a skateboard is moving very slowly when he encounters a 2 m dip. How fast will be 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.

1

0

-1

-2

-3 meters

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.
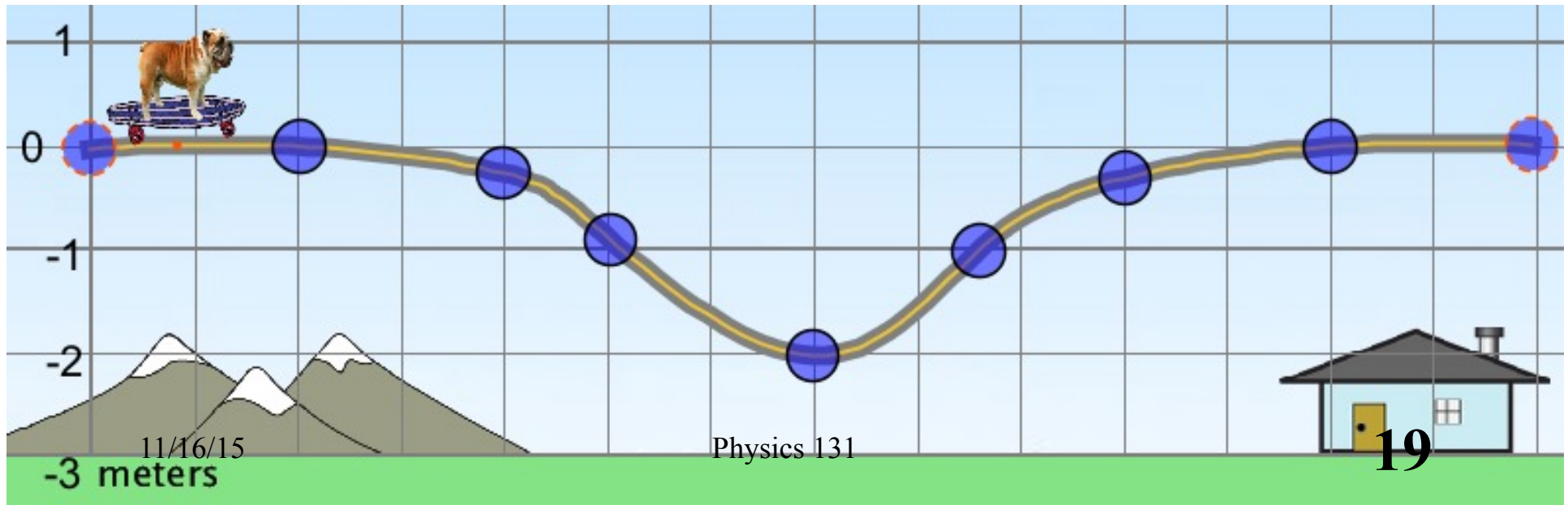What is their total mechanical energy?

1. Almost zero
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4. You can't tell from the information given.