



Name _____ Class _____ Date _____

1 The diagram below shows block A, having mass $2m$ and speed v , and block B having mass m and speed $2v$.

Compared to the kinetic energy of block A, the kinetic energy of block B is

A the same
B twice as great
C one-half as great
D four times as great

2 A 40-kilogram student runs up a staircase to a floor that is 5.0 meters higher than her starting point in 7.0 seconds. The student's power output is

A 29 W
B 280 W
C 1.4×10^3 W
D 1.4×10^4 W

3 When a box of beakers was dropped, the beakers broke into many pieces. Dropping the box a second time could not cause the pieces to reform into the original beakers because this would require entropy to

A decrease
B increase

4 How much work is done on a downhill skier by an average braking force of 9.8×10^2 newtons to stop her in a distance of 10 meters?

A 1.0×10^1 J
B 9.8×10^1 J



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A 40 W
B 20 W
C 15 W
D 12 W

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9 The diagram below shows proton P located at point A near a positively charged sphere. If 6.4×10^{-19} joule of work is required to move the proton from point A to point B, the potential difference between A and B is

A 6.4×10^{-19} V
B 4.0×10^{-19} V
C 6.4 V
D 4.0 V

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A 0.080 J
B 0.20 J
C 0.30 J
D 0.78 J

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An object moving at a constant speed of 25 meters per second possesses 450 joules of kinetic energy. What is the object's mass?

A 0.72 kg
B 1.4 kg
C 18 kg
D 36 kg

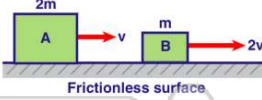


ANSWER KEY

The diagram below shows block A, having mass $2m$ and speed v , and block B having mass m and speed $2v$.

Compared to the kinetic energy of block A, the kinetic energy of block B is

- A the same
- B twice as great
- C one-half as great
- D four times as great



(b)

A **40-kilogram** student runs up a staircase to a floor that is **5.0 meters higher** than her starting point in **7.0 seconds**.

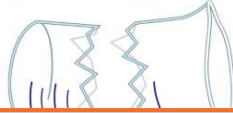
The student's **power output** is

- A 29 W
- B 280 W
- C 1.4×10^3 W
- D 1.4×10^4 W

(b)

When a box of beakers was dropped, the beakers broke into many pieces. Dropping the box a second time could **not** cause the pieces to reform into the original beakers because this would **require entropy** to

- A decrease
- B increase
- C remain the same



(a)

How much **work** is done on a downhill skier by an average **braking force** of **9.8×10^2 newtons** to stop her in a distance of **10 meters**?

- A 1.0×10^1 J
- B 9.8×10^1 J
- C 1.0×10^3 J



(d)



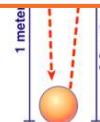
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- B 20 W
- C 15 W
- D 12 W



- A 0.060 J
- B 0.20 J
- C 0.30 J
- D 0.78 J



The diagram below shows **proton P** located at point A near a positively charged sphere.

If 6.4×10^{-19} joule of work is required to **move** the proton from point A to point B, the **potential difference** between A and B is

- A 6.4×10^{-19} V
- B 4.0×10^{-19} V
- C 6.4 V
- D 4.0 V



(d)

An object moving at a constant speed of **25 meters per second** possesses **450 joules** of kinetic energy. **What is the object's mass?**

- A 0.72 kg
- B 1.4 kg
- C 18 kg
- D 36 kg

(b)