# LINEAR MOTION

General Review

1. Velocity is to speed as displacement is to

A. acceleration

B. momentum

C. time

D. distance

1. Velocity is to speed as displacement is to

A. acceleration

B. momentum

C. time

D. distance

2. A basketball player jumped straight up to grab a rebound. If she was in the air for 0.60 second, how high did she jump?

A. 0.45 m

B. 1.2 m

C. 0.78 m

D. 3.1 m

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3. The diameter of a US penny is closest to

A. $10^{0}$ m

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4. The speed of a car is increased uniformly from 20 meters per second to 30 meters per second in 4.0 seconds. The magnitude of the car's average acceleration in this 4.0-second interval is

A. 0.40 $m/s^2$

B. 10 $m/s^2$

C. 2.5 $m/s^2$

D. 13 $m/s^2$

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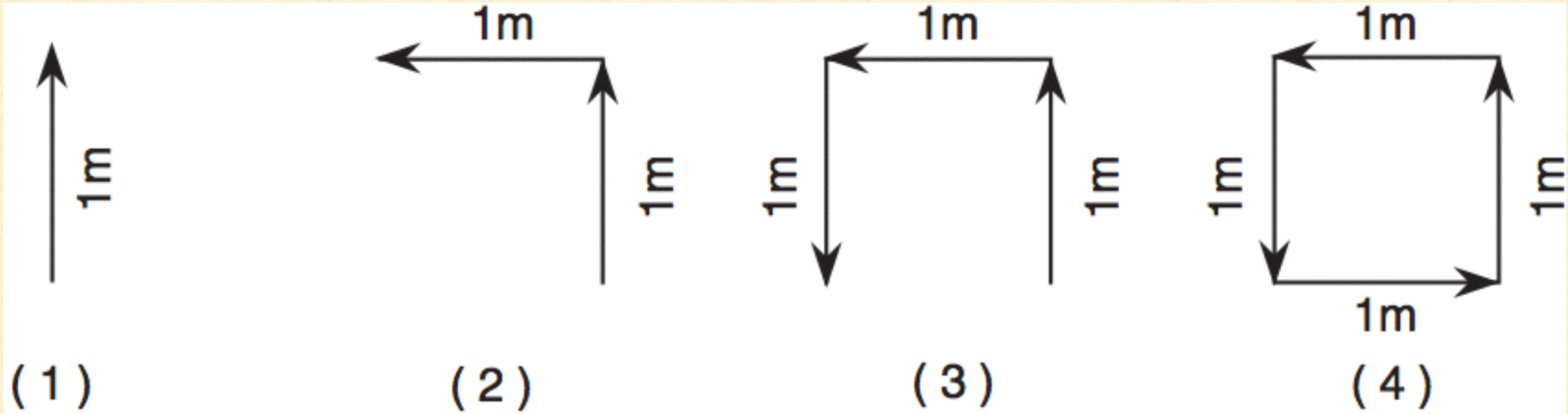
5. Which vector diagram represents the greatest magnitude of displacement for an object?



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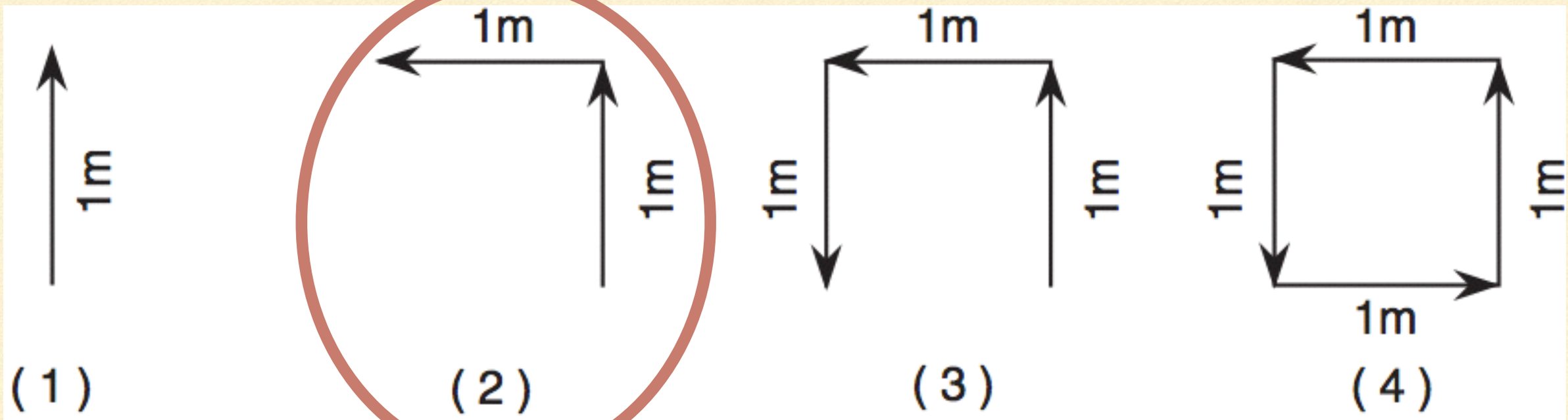

6. One car travels 40 meters due east in 5.0 seconds, and a second car travels 64 meters due west in 8.0 seconds. During their periods of travel, the cars definitely had the same

A. average velocity

B. total displacement

C. change in momentum

D. average speed

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7. A skater increases her speed uniformly from 2.0 m/s to 7.0 m/s over a distance of 12 meters. The magnitude of her acceleration as she travels this 12 meters is

A. 1.9 $m/s^2$

B. 2.4 $m/s^2$

C. 2.2 $m/s^2$

D. 3.9 $m/s^2$

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D. 3.9 $m/s^2$

8. A ball thrown vertically upward reaches a maximum height of 30 meters above the surface of Earth. At its maximum height the speed of the ball is

A. 0.0 m/s

B. 3.1 m/s

C. 9.8 m/s

D. 2.4 m/s

8. A ball thrown vertically upward reaches a maximum height of 30 meters above the surface of Earth. At its maximum height the speed of the ball is

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9. A ball dropped from rest falls freely until it hits the ground with a speed of 20 m/s. The time during which the ball is in free fall is approximately

A. 10 s

B. 2 s

C. 0.5 s

D. 1 s

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10. In a 4.0-kilometer race, a runner completes the first kilometer in 5.9 minutes, the second kilometer in 6.2 minutes, the third kilometer in 6.3 minutes, and the final kilometer in 6.0 minutes. The average speed of the runner for the race is approximately

A. 12 km/min

B. 0.33 km/min

C. 24 km/min

D. 0.16 km/min

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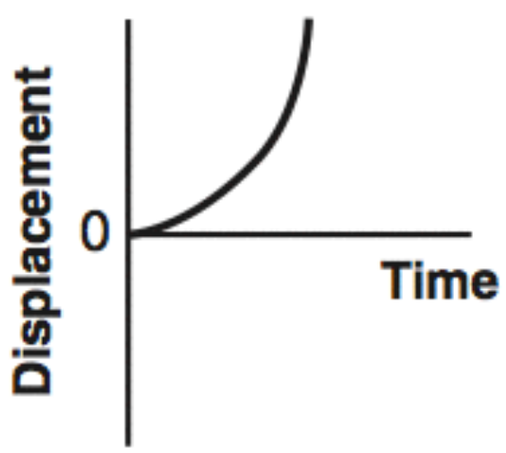
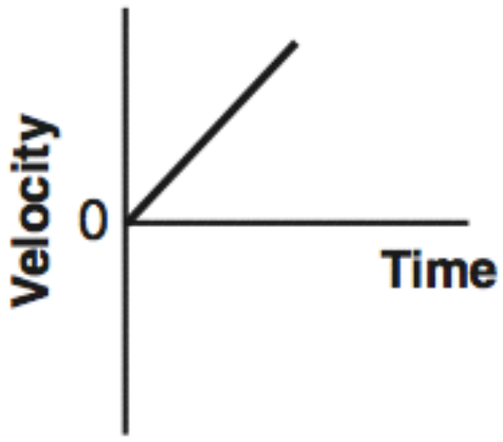
12. Which pair of graphs represents the motion of the same object?

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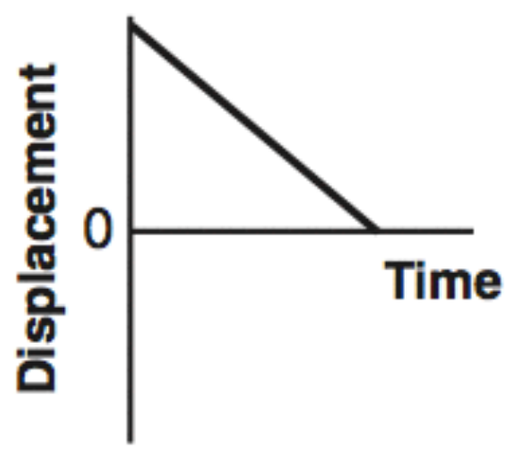


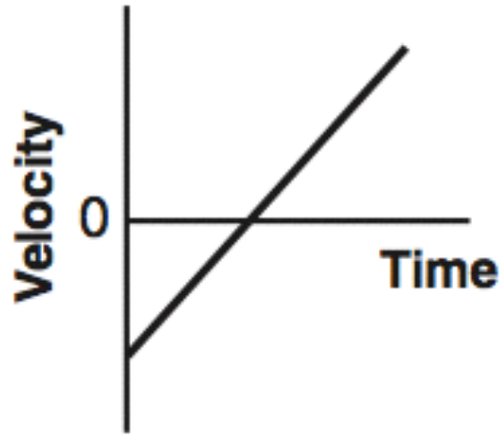


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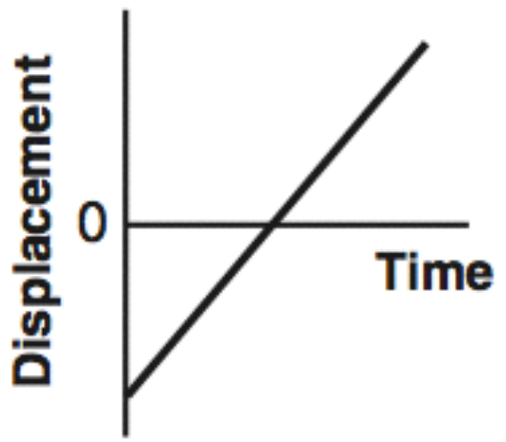


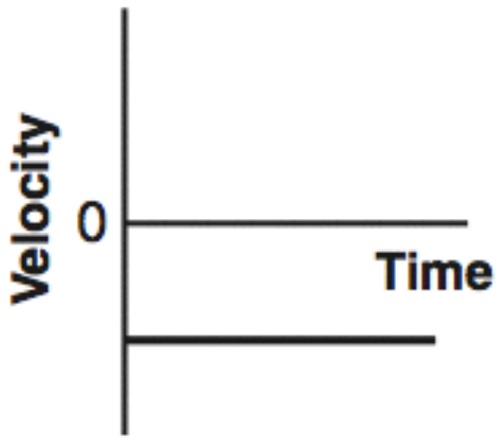


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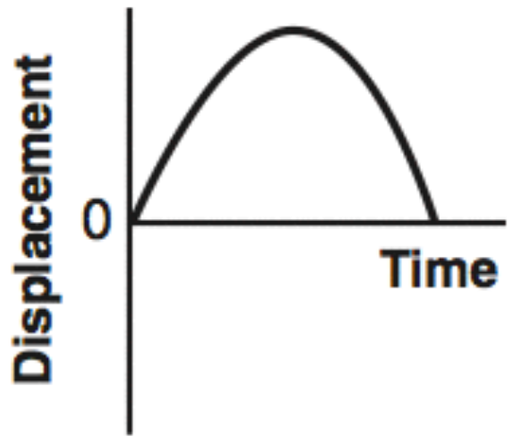


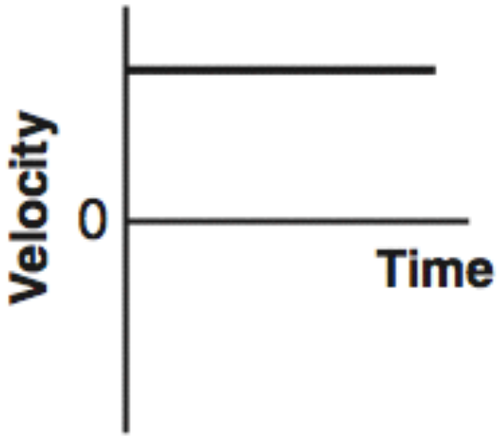


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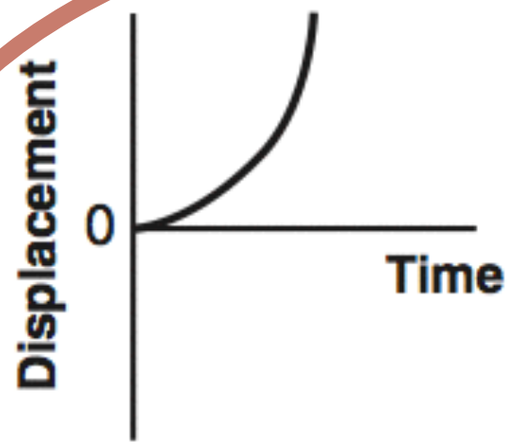


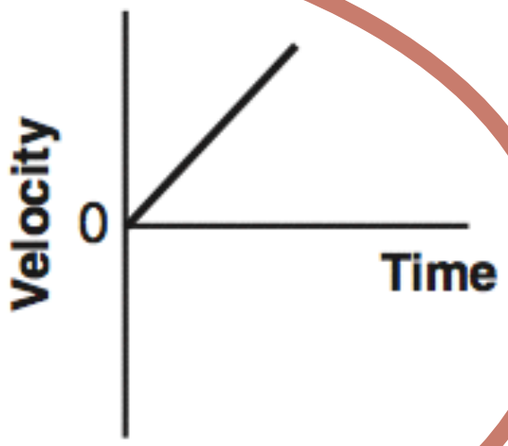


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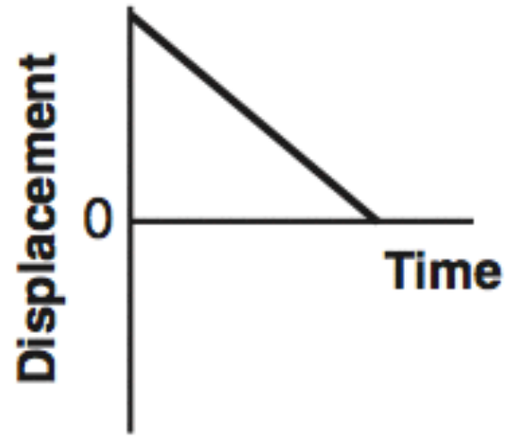


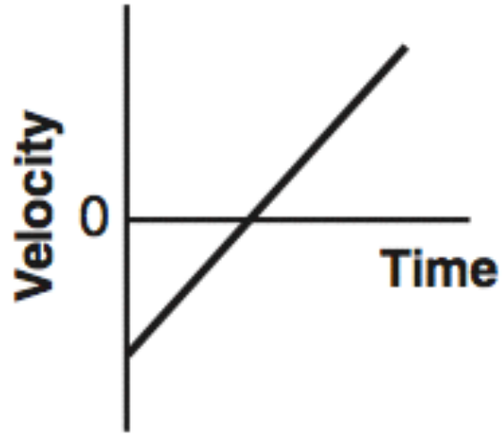


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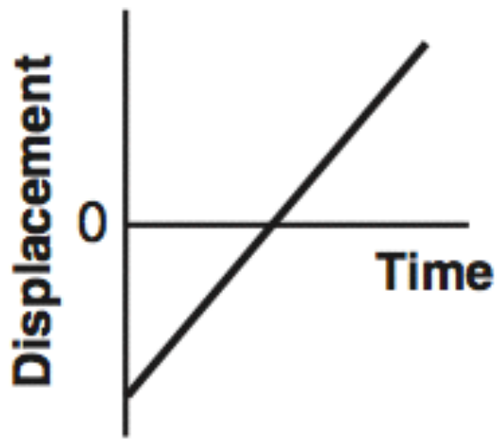


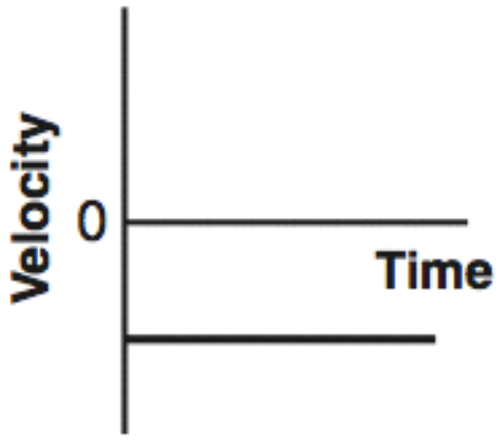


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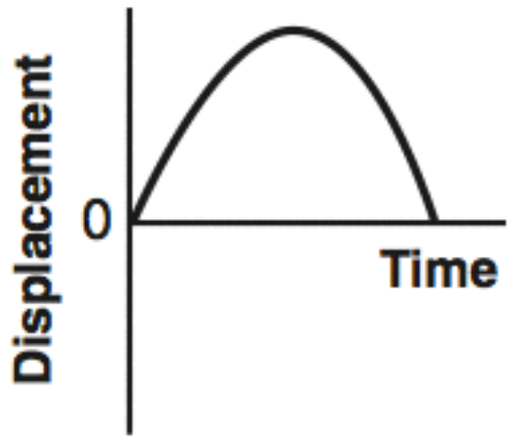


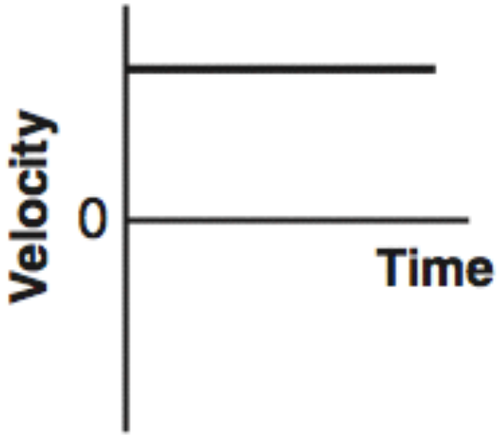


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13. An egg is dropped from a third-story window. The distance the egg falls from the window to the ground is closest to

A. $10^0$ m

B. $10^1$ m

C. $10^2$ m

D. $10^3$ m

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14. A 25-Newton weight falls freely from rest from the roof of a building. What is the total distance the weight falls in the first 1.0 second?

A. 9.8 m

B. 2.5 m

C. 19.6 m

D. 4.9 m

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A. 9.8 m

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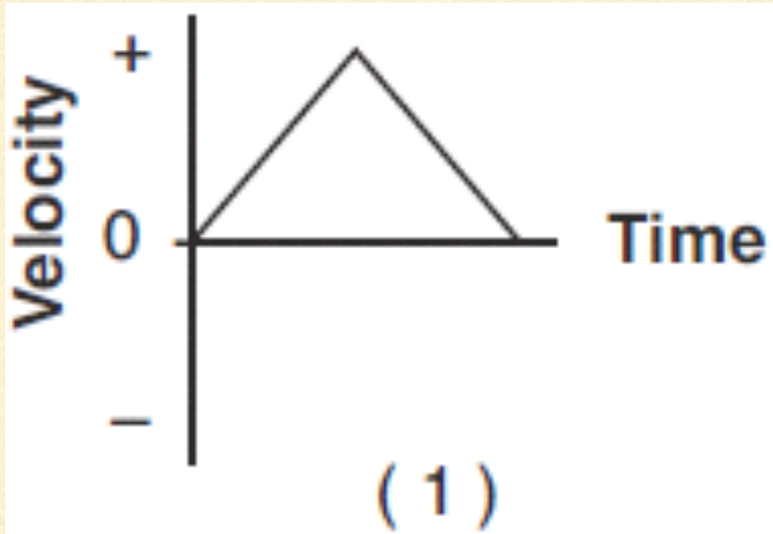
15. A student throws a baseball vertically upward and then catches it. If vertically upward is considered to be the positive direction, which graph best represents the relationship between velocity and time for the baseball?

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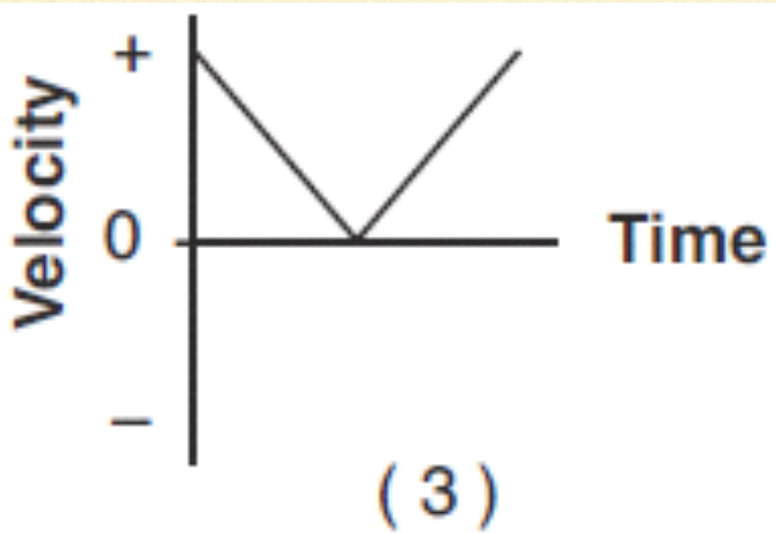


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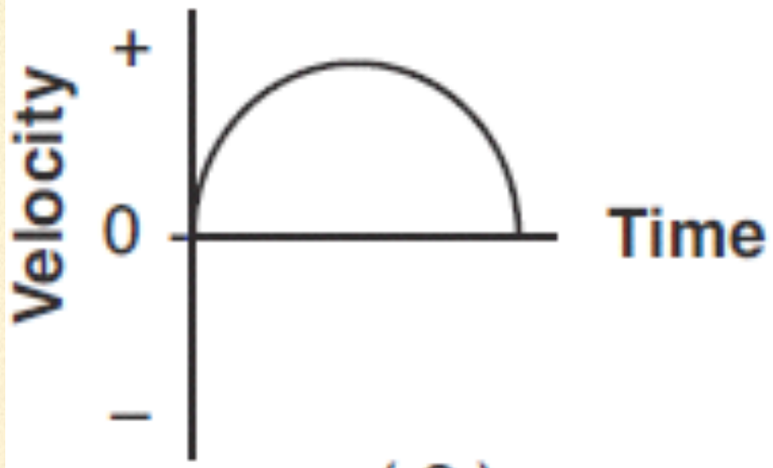


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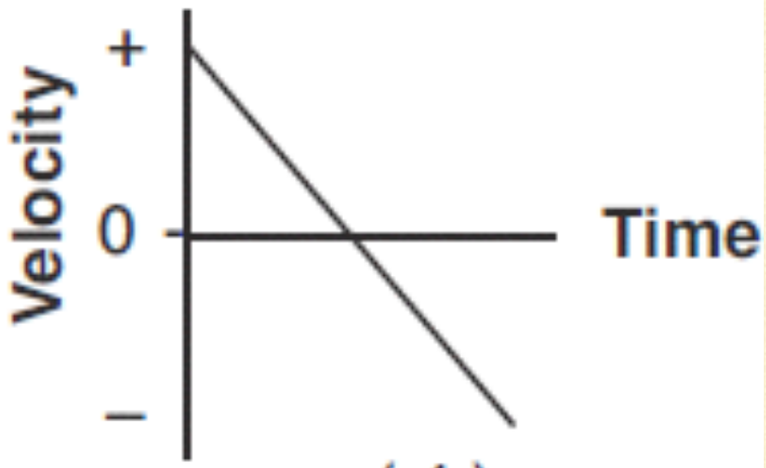


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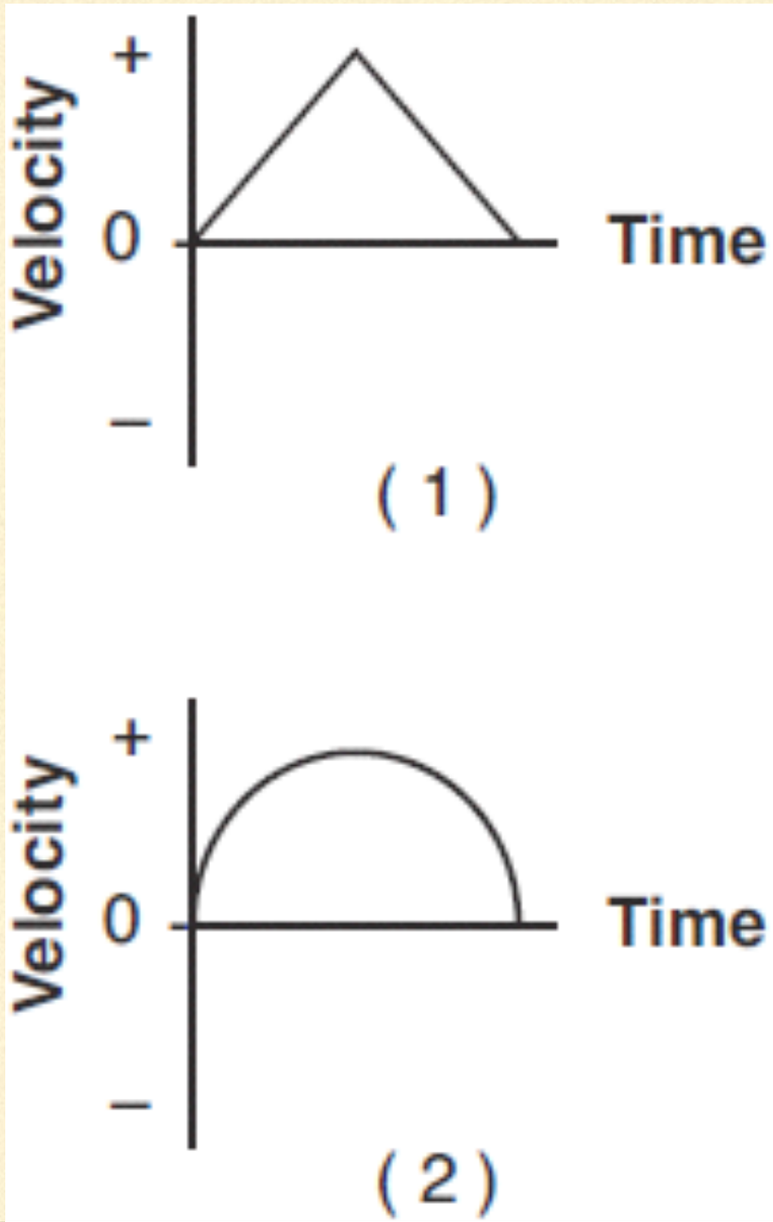


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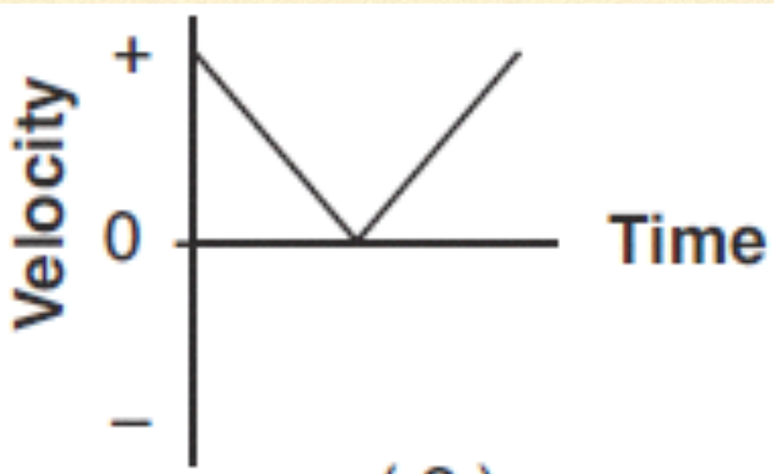


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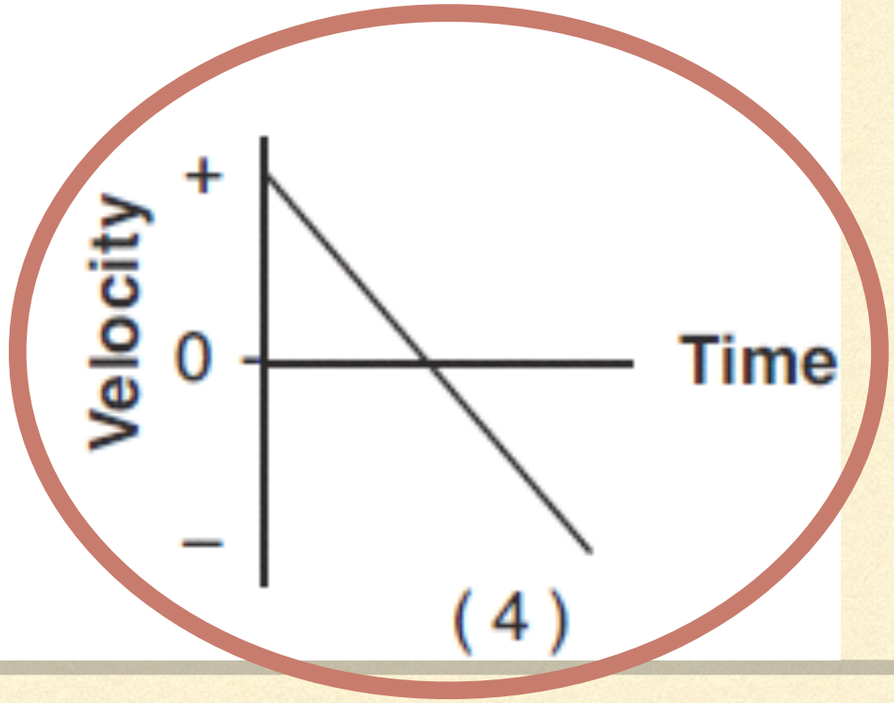


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16. A ball thrown vertically upward reaches a maximum height of 30 meters above the surface of Earth. At its maximum height, the acceleration of the ball is

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