

Name _____

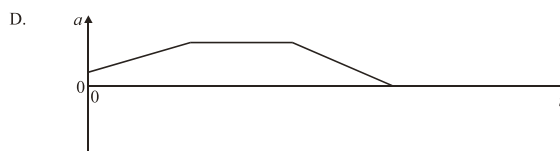
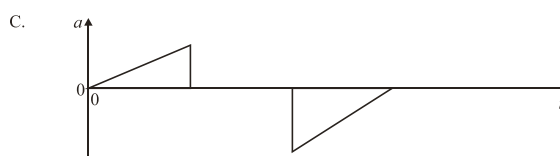
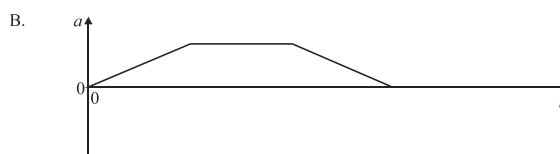
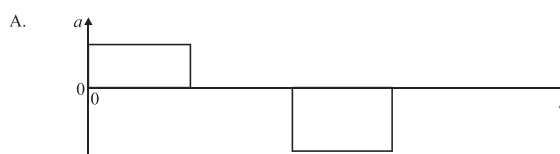
Date _____

Mr Rawson



Acceleration II

1. A worker drops a wrench from the top of a tower 59.0 m tall. With what *velocity* does the wrench strike the ground? (Assume the positive direction is upward.)
2. A physics student throws a softball straight up into the air. The ball was in the air for a total of 2.96 s before it was caught at its original position.
 - A. What was the initial velocity of the ball?
 - B. How high did it rise?
3. A car accelerates uniformly from rest. It then continues at constant speed before the brakes are applied, bringing the car to rest. Which of the following graphs best shows the variation with time t of the acceleration a of the car?



4. A ball is thrown vertically upward (assumed to be the positive direction) with a speed of $18.0 \text{ m}\cdot\text{s}^{-1}$ from a height of 8.0 m .
- A. How high does the ball rise from its original position?
 - B. How long does it take to reach its highest point?
 - C. How long does the ball take to hit the ground after it reaches its highest point?
 - D. What is the ball's velocity when it returns to the level from which it started?
5. A ball, initially at rest, takes time t to fall through a vertical distance h . If air resistance is ignored, the time taken for the ball to fall from rest through a vertical distance $9h$ is:
- A. $3t$
 - B. $5t$
 - C. $9t$
 - D. $10t$
6. A ball is released from rest near the surface of the Moon. Which **one** of the following quantities increases at a constant rate?
- A. Only distance fallen
 - B. Only speed
 - C. Only speed and distance fallen
 - D. Only speed and acceleration