

## POSITION, VELOCITY, AND ACCELERATION

1. An object goes from 0 to 6 meters/second in 5 seconds under constant acceleration.

A. Sketch three graphs to illustrate the object's acceleration, velocity, and position with respect to time in seconds. Be sure your graphs are well-labeled.

B. How far does the object travel between 0 and 2 seconds? between 3 and 5 seconds?

C. What would change (if anything) on each graph if the object went from 0 to 6 meters/second in 8 seconds instead?

D. Sketch a graph of velocity versus position.

2. A heavy object is dropped from the top of a cliff. It takes 8 seconds to hit the ground. Graph the acceleration, velocity, and position functions with respect to time in seconds.

3. A 727 jet needs to be flying 200 mph to take off. If it can accelerate from 0 to 200 mph in 30 seconds, how long must the runway be (assuming constant acceleration).