

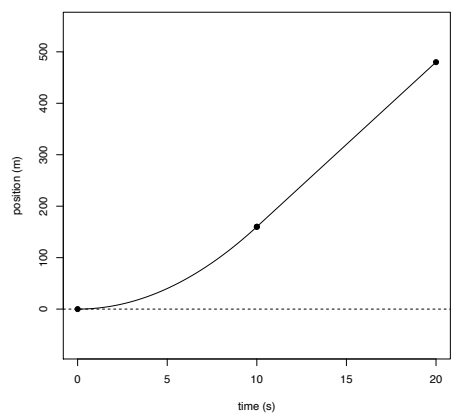
## D. A Larger Problem

For each story, first, write a description in physics language. Use the terms not moving, constant velocity, positive acceleration, or negative acceleration to describe the motion story.

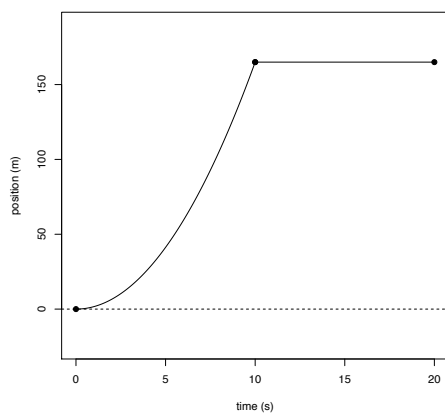
Then, select a position-time graph, velocity-time graph, acceleration-time graph, and motion map for each story from the following pages.

Story	Position-Time Graph	Velocity-Time Graph	Acceleration-Time Graph	Motion Map
1. A car is waiting at a red light. The light turns green and the driver hits the gas.				
2. A driver floors the accelerator and moves forward, but it drives straight into a wall and stops.				
3. A driver accelerates to a constant velocity and then keeps driving.				
4. A traffic light turns green, and a driver accelerates from rest until he is driving at a constant velocity. Eventually he slows back down to a stop.				
5. Somebody is sitting on the couch watching TV, then they get up and go for a walk.				
6. A car is driving forward at a constant speed, then it hits a wall and stops.				

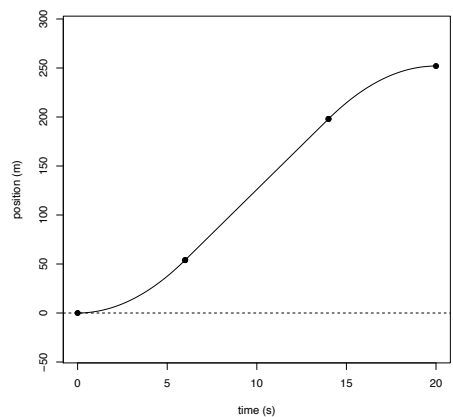
Position graph A



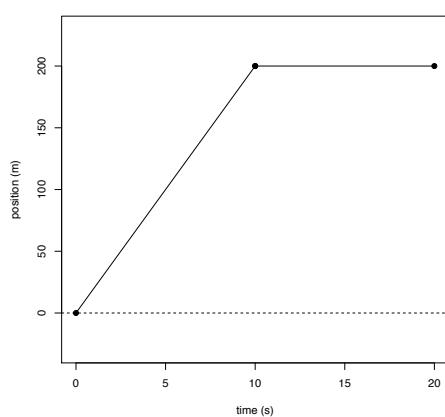
Position graph D



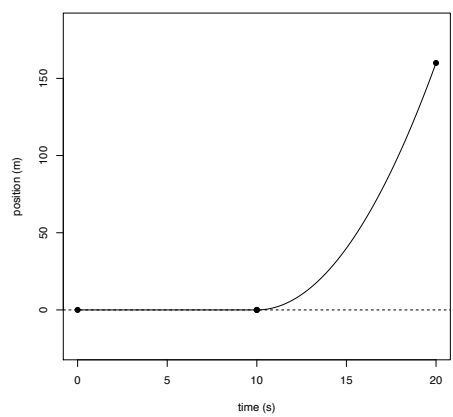
Position graph B



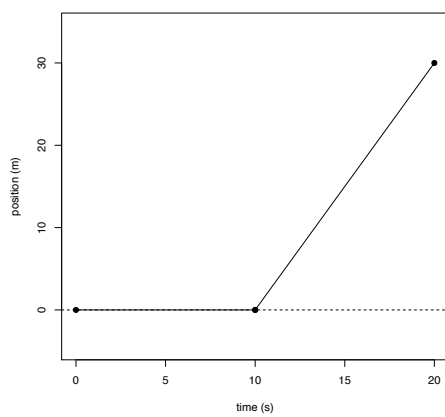
Position graph E



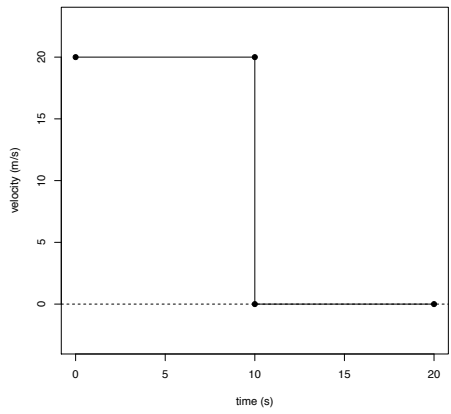
Position graph C



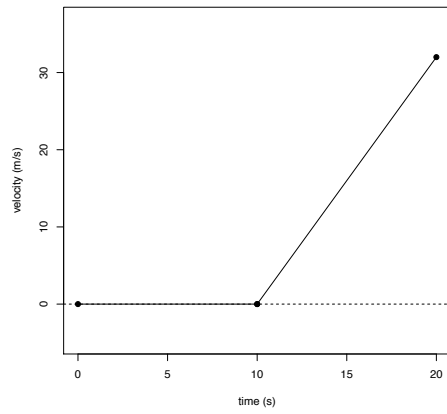
Position graph F



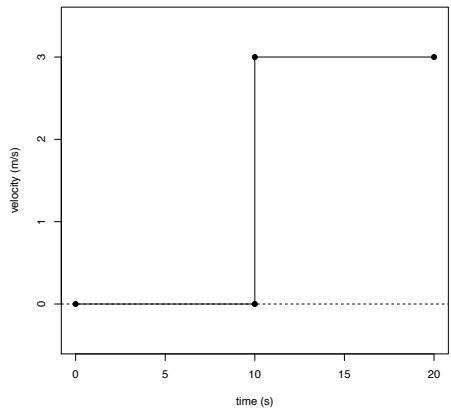
Velocity graph A



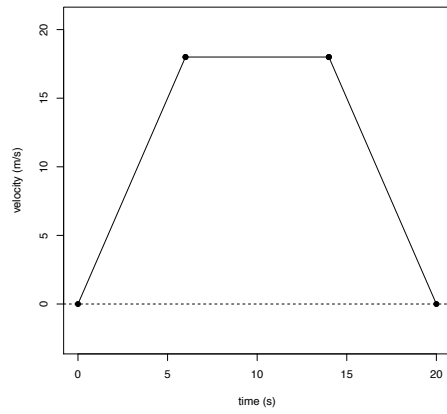
Velocity graph D



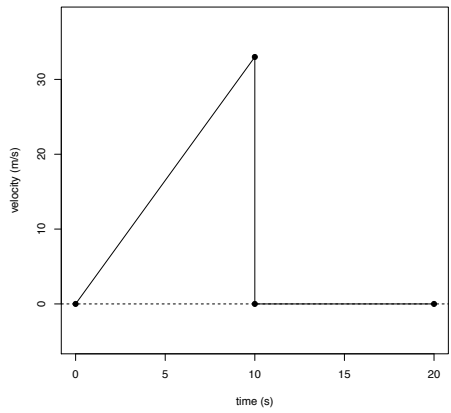
Velocity graph B



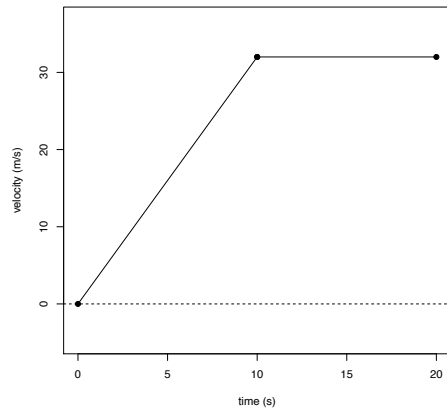
Velocity graph E



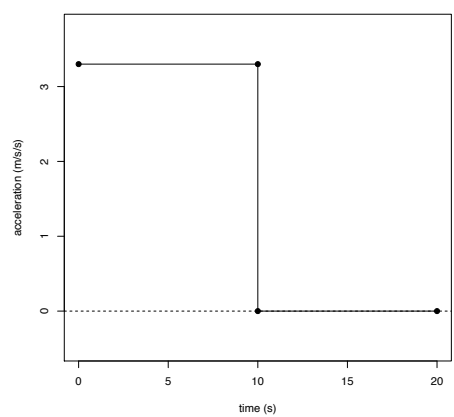
Velocity graph C



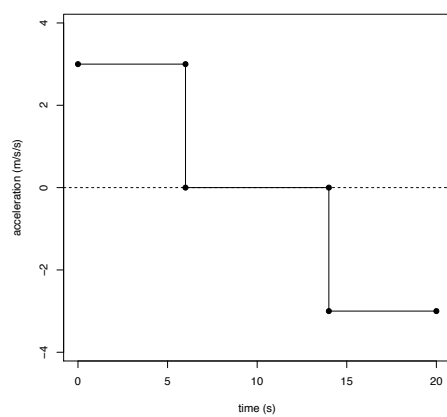
Velocity graph F



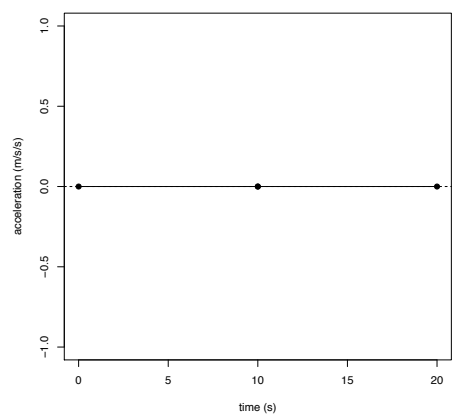
Acceleration graph A



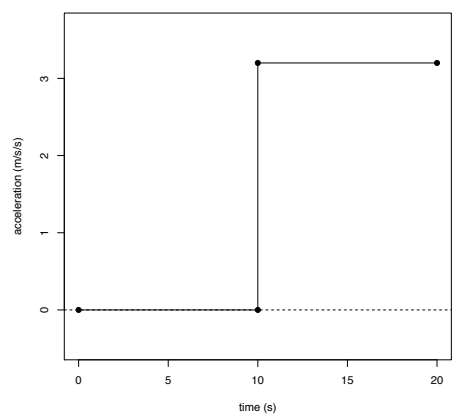
Acceleration graph D



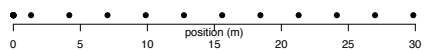
Acceleration graph B



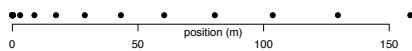
Acceleration graph C



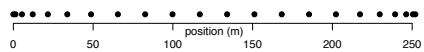
Motion Map A



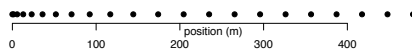
Motion Map D



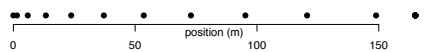
Motion Map B



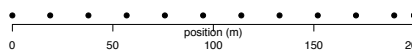
Motion Map E



Motion Map C



Motion Map F



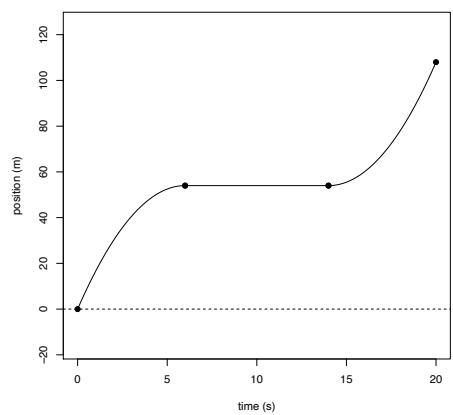
**D.1 Answer**

Story	Position-Time Graph	Velocity-Time Graph	Acceleration-Time Graph	Motion Map
1. A car is waiting at a red light. The light turns green and the driver hits the gas.	C	D	C	D
2. A driver floors the accelerator and moves forward, but it drives straight into a wall and stops.	D	C	A	C
3. A driver accelerates to a constant velocity and then keeps driving.	A	F	A	E
4. A traffic light turns green, and a driver accelerates from rest until he is driving at a constant velocity. Eventually he slows back down.	B	E	D	B
5. Somebody is sitting on the couch watching TV, then they get up and go for a walk.	F	B	B	A
6. A car is driving forward at a constant speed, then it hits a wall and stops.	E	A	B	F

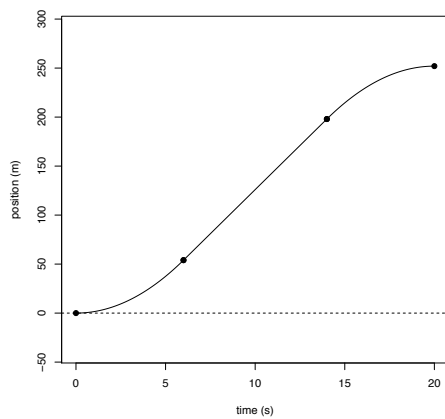
## E: Another Large Problem

Story	Position-Time Graph	Velocity-Time Graph	Acceleration-Time Graph	Motion Map
1. A traffic light turns green, and a driver accelerates from rest until he is driving at a constant velocity. Eventually he slows back down to a stop.				
2. A car that is already moving slows down to a stop at a red light. It waits for a time. Then, the light turns green and the driver accelerates again.				
3. Someone is driving on the highway at an unsafe speed, but sees a police car and needs to slow down. He drives past the police car at a constant velocity. After passing the police car, he speeds back up to an unsafe speed.				
4. A driver is moving at a constant speed. A light in front of her turns red, and she begins to slow down. But before she is stopped, it turns green and she speeds back up				
5. A driver is moving at a constant speed. He sees a yellow light and floors his accelerator in order to make it past. After shooting through the intersection, he slows back down to a more normal speed.				

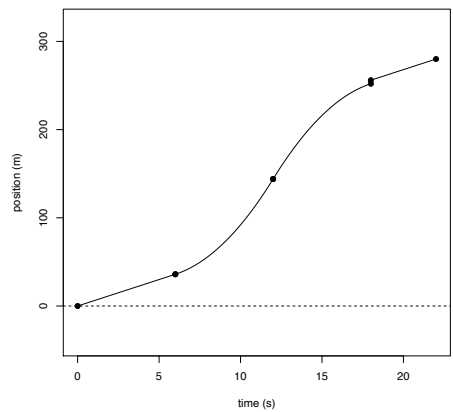
Position graph A



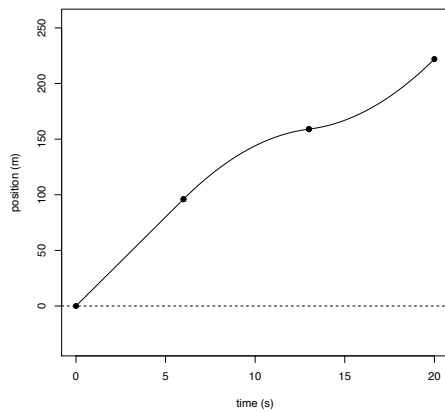
Position graph D



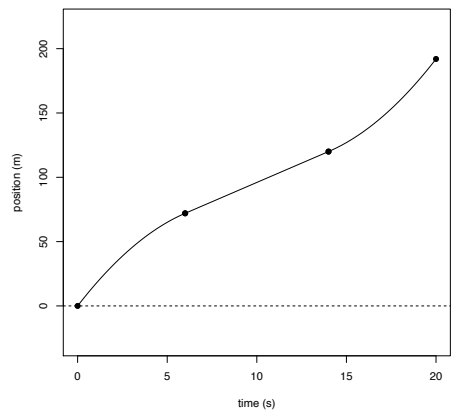
Position graph B



Position graph E

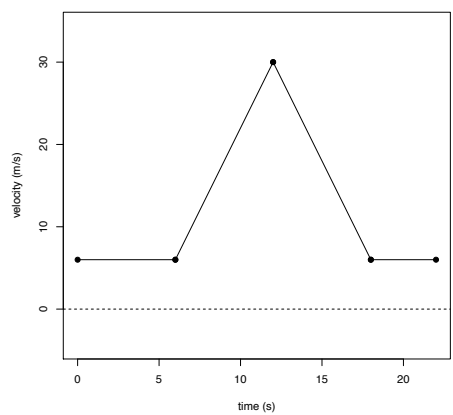


Position graph C

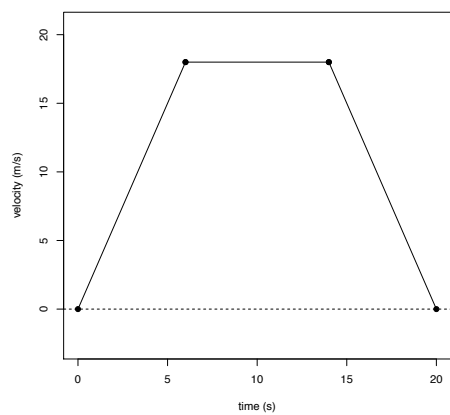




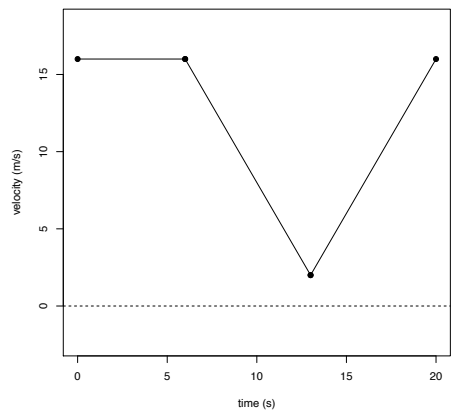
Velocity graph A



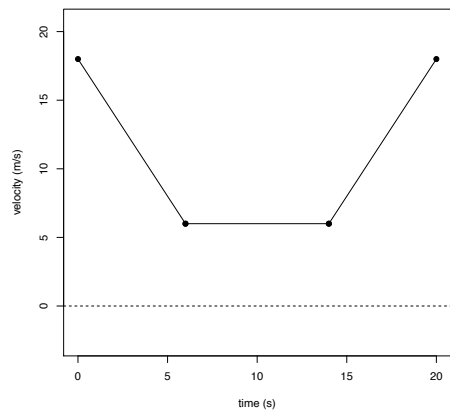
Velocity graph D



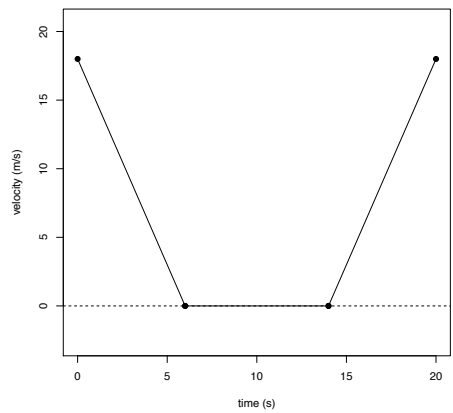
Velocity graph B



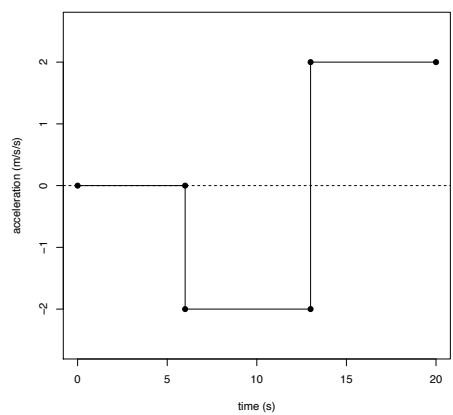
Velocity graph E



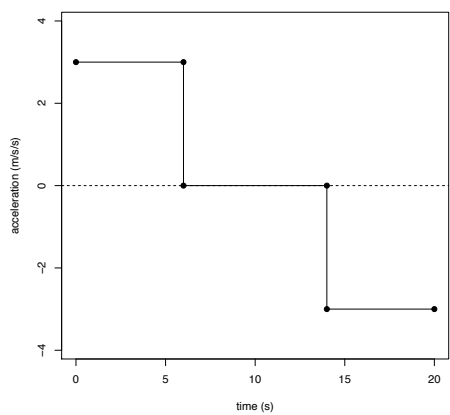
Velocity graph C



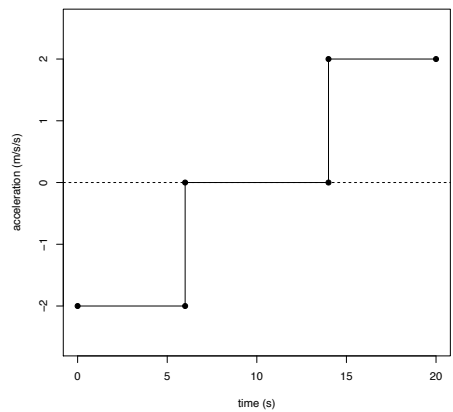
Acceleration graph A



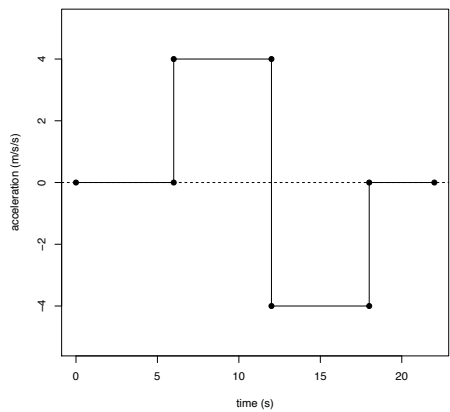
Acceleration graph D



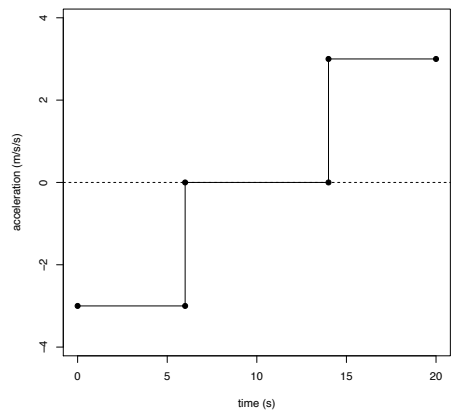
Acceleration graph B



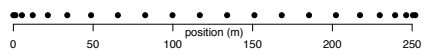
Acceleration graph E



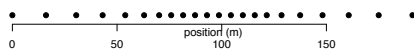
Acceleration graph C



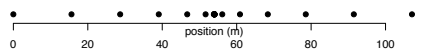
Motion Map A



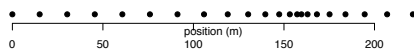
Motion Map D



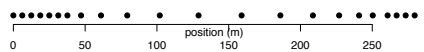
Motion Map B



Motion Map E



Motion Map C



**E. Answers**

Story	Position-Time Graph	Velocity-Time Graph	Acceleration-Time Graph	Motion Map
1. A traffic light turns green, and a driver accelerates from rest until he is driving at a constant velocity. Eventually he slows back down to a stop.	B	E	D	A
2. A car that is already moving slows down to a stop at a red light. It waits for a time. Then, the light turns green and the driver accelerates again.	E	D	C	B
3. Someone is driving on the highway at an unsafe speed, but sees a police car and needs to slow down. He drives past the police car at a constant velocity. After passing the police car, he speeds back up to an unsafe speed.	C	B	B	E
4. A driver is moving at a constant speed. A light in front of her turns red, and she begins to slow down. But before she is stopped, it turns green and she speeds back up	A	A	A	C
5. A driver is moving at a constant speed. He sees a yellow light and floors his accelerator in order to make it past. After shooting through the intersection, he slows back down to a more normal speed.	D	C	E	D