Creating Acceleration Profiles – Answer Key

1. A car initially at rest speeds up at a constant rate. It travels at a cruising speed of 30 m/s, then slows down for a traffic light. Construct the acceleration profile.

![Acceleration Profile 1](image1)

2. A motorcyclist traveling east at 20 m/s slows to a stop, reverses direction, and then speeds up to 10 m/s west. Construct the acceleration profile.

![Acceleration Profile 2](image2)

3. Label each segment of the acceleration profiles with a corresponding letter A - E.
   - A. speeding up in the positive direction = +a
   - B. slowing down in the positive direction = -a
   - C. speeding up in the negative direction = -a
   - D. slowing down in the negative direction = +a
   - E. moving with constant or zero velocity = zero acceleration