

### Answer on Question #55285, Physics / Other

**Task:** A car stopped at a stop light accelerates at a constant speed for 20 second to reach a maximum speed of 80 m/s. What is the car's overall acceleration?

**Answer:**

**Acceleration** is a vector when it refers to the rate of change of velocity. Acceleration is scalar when it refers to rate of change of speed. A car slowing down to stop at a stop sign is accelerating because its speed is changing. We might refer to this type of acceleration as deceleration or negative acceleration. A car going at a constant speed around a curve is still accelerating because its direction is changing.

$$\text{acceleration} = (v_f - v_i)/t = (80\text{m/s} - 0\text{m/s})/20\text{s} = 4\text{m/s}^2$$

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