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BSCS601

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| --- | --- | --- | --- | --- | --- | --- |
| **Time (sec)** | **Leading Vehicle Acceleration**  **(ft/s^2)** | **Leading Vehicle Speed (ft/s)** | **Leading Vehicle Distance**  **(ft)** | **Following Vehicle Acceleration**  **(ft/s^2)** | **Following Vehicle Speed (ft/s)** | **Following Vehicle Distance (ft)** |
| 0 | 0 | 0 | 0 | 0 | 0 | -25 |
| 1 | 4 | 4 | 4 | 30 | 0 | -21 |
| 2 | 4 | 8 | 12 | 30 | 4 | -17 |
| 3 | 4 | 12 | 24 | 30 | 8 | -13 |
| 4 | 4 | 16 | 40 | 30 | 12 | -9 |
| 5 | 4 | 20 | 60 | 30 | 16 | -5 |
| 6 | 4 | 24 | 84 | 30 | 20 | 1 |
| 7 | -2 | 22 | 110 | 30 | 22 | 7 |
| 8 | -2 | 20 | 138 | 30 | 20 | 13 |
| 9 | -2 | 18 | 168 | 30 | 18 | 19 |
| 10 | -2 | 16 | 200 | 30 | 16 | 25 |

In this simulation, the leading vehicle starts at rest and accelerates at a rate of 4 ft/s^2 for 7 seconds. Then, it decelerates at a rate of 2 ft/s^2 for another 3 seconds. The following vehicle uses a car- following model to update its acceleration based on the position and speed difference between the leading and following vehicles. The initial distance between the two vehicles is 25 feet.