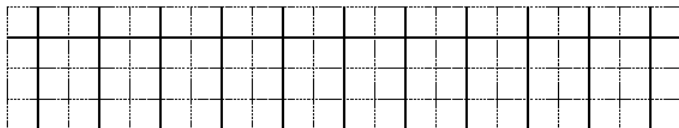


I-24

Construct motion diagrams for the motions described below.

a. A subway train in Washington, D.C., starts from rest and accelerates at 2.0 m/s^2 for 12 seconds.



b. A pole-vaulter, just before touching the cushion on which she lands after a jump, is falling downward at a speed of 10 m/s . The pole-vaulter sinks about 2.0 m into the cushion before stopping.



c. The driver of a car traveling at 35 m/s suddenly sees a police car. The driver attempts to reach the speed limit of 25 m/s by accelerating at 2.5 m/s^2 . The driver has a reaction time of 0.55 s . (The reaction time is the time between first seeing the police car and pressing the brake.)



d. A car, initially at rest, accelerates toward the west at 2.0 m/s^2 . At the same time that the car starts moving, a truck, 350 m west of the car and moving at 16 m/s toward the east, starts to move slower, accelerating at 1.0 m/s^2 . The car and truck pass safely.



I-24

This page titled I-24 is shared under a [CC BY-NC-SA 4.0](https://creativecommons.org/licenses/by-nc-sa/4.0/) license and was authored, remixed, and/or curated by [Paul D'Alessandris](#) via [source content](#) that was edited to the style and standards of the LibreTexts platform.