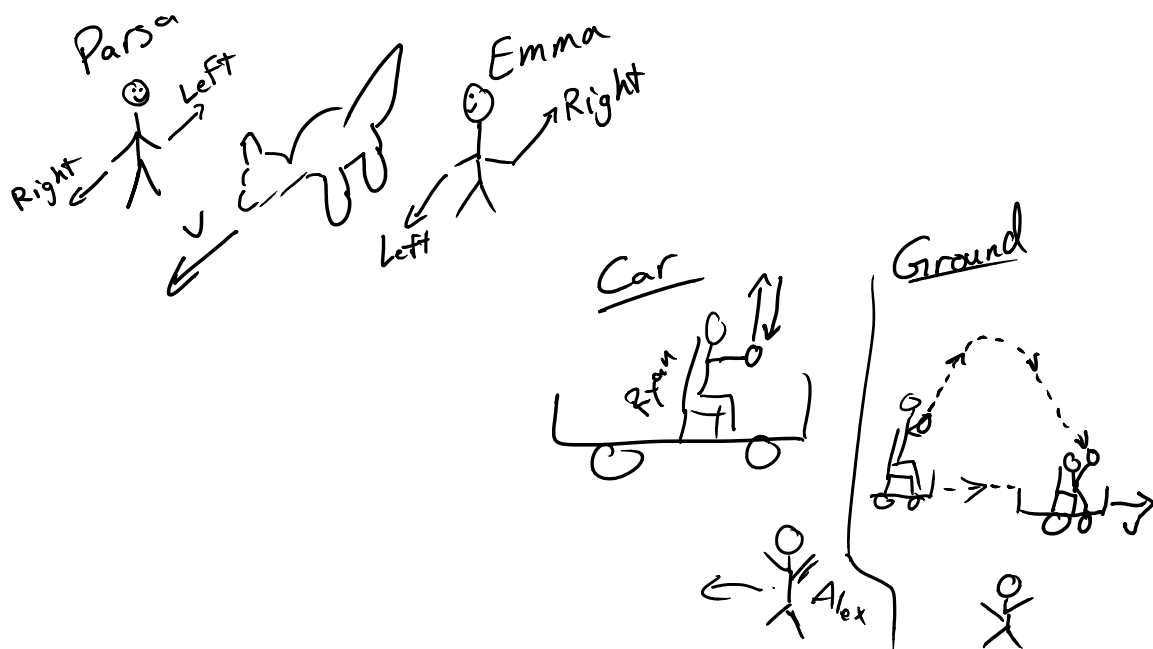


Reference Frames / Relative Motion

May-06-16 8:02 AM

Reference Frame: a coordinate system or physical point from which events are viewed.



Inertial Frames: Reference Frames moving at a constant velocity.

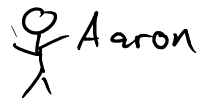
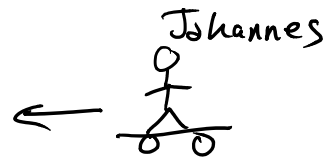
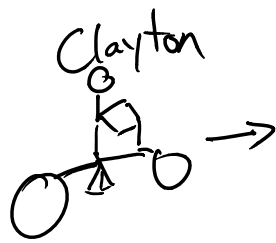
All physical laws are valid in all inertial frames.

Non-inertial Frames: accelerated frames.

→ fictional forces are required to explain motions.

Example situation

Example.



From Aaron's Frame of reference:

Clayton is travelling right $v = 13 \text{ m/s}$

Johannes is travelling left $v = -7 \text{ m/s}$

From Clayton's Frame:

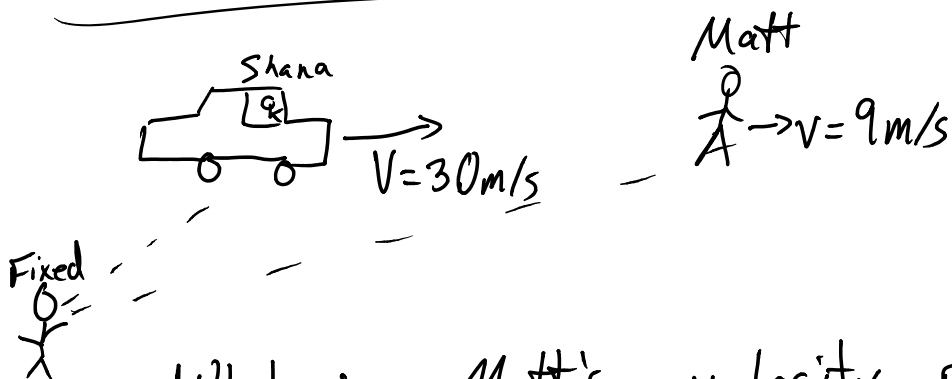
Johannes $v = -20 \text{ m/s}$

Aaron $v = -13 \text{ m/s}$

From Johannes Frame:

Clayton $v = 20 \text{ m/s}$

Aaron $v = 7 \text{ m/s}$



What is Matt's velocity relative to Shana?

$$v = 9 - 30 = -21 \text{ m/s}$$