Answer key: Frame of Reference & Coordinate System

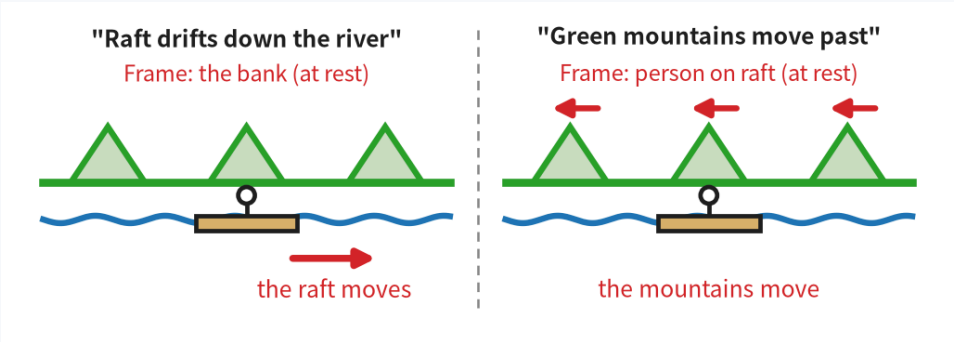
Physics with Tiaotiao 跳跳 · Kinematics · High School Physics
Study sheet for the video "Frame of Reference & Coordinate System": answer key

Answers and explanations

Tap a blue time to jump to the part of the video that explains the question.

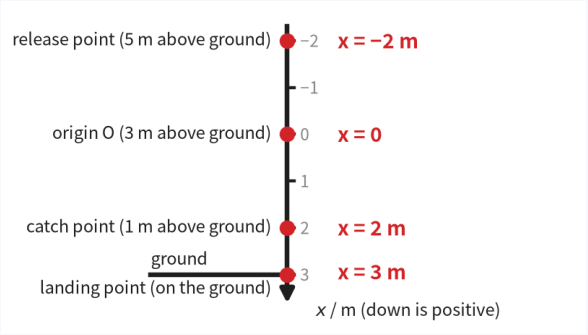
1. A. "Flows" has the bridge as its subject, so the bridge is moving. "Doesn't flow" has water as its subject, so the water is not moving. The one that is not moving is the frame: water.
Check: with the ground as the frame we would see the bridge still and the water flowing, the opposite of the poem. So the frame is not the ground.
▶ **Watch 9:29, Example 1**

2. A and B are correct. C and D are wrong.
A. "Rises": the subject is the Sun, so the Sun moves. The mountain it rises from does not move. It is a mountain on Earth, so the frame is Earth.
B. "Glides through": the subject is the Moon, so the Moon moves. Only the clouds are left, so the frame is the clouds.
C. Wrong. First line: the raft moves, so the bank is at rest and is the frame. Second line: the mountains move relative to the people on the raft, like poles moving past a bus window. So the frame is the person on the raft. The two frames are different.
D. Wrong. A frame can be chosen freely. It can be moving or not.



▶ **Watch 10:24, Example 2**

3. A. Downward is positive, so points above the origin O are negative and points below it are positive.
Release point: 2 m above O, so **−2 m**. Landing point: the ground is 5 − 2 = 3 m below O, so **3 m**. Catch point: 1 m above the ground, so 3 − 1 = 2 m below O, which gives **2 m**.
Remember the units: coordinates in physics always need them.



▶ **Watch 18:55, Example 3**