

One of the skills you should be able to demonstrate is how to do conversions using the method taught in class. Here is an example:

Jesse, 31, was captain of Airlines Flight 3701. He was 6 feet tall and weighed 190 pounds. Peter, 23, was the co-pilot. They were transporting an empty plane from Little Rock, Arkansas to Minneapolis, where it was needed for a morning flight. They decided to see what that baby could do, "forty-one it," take the jet to 41,000 feet --- the maximum altitude the plane was designed to fly. The thrust of the engines pressed them into their seats with 2.3 times the force of gravity as they soared ever higher.

A woman air traffic controller's voice crackled over the radio: "3701, are you an RJ-200?"

"That's affirmative."

"I've never seen you guys up at 41 there."

The boys laughed. "Yeah, we're actually a, there's ah, we don't have any passengers on board, so we decided to have a little fun and come on up here."

Little did they know that their fun was doomed when they set the auto-pilot for the impressive climb. They had specified the *rate* of climb rather than the *speed* of the climb. The higher the plane soared, the slower it flew. The plane was in danger of stalling when it reached 41,000 feet, as the autopilot vainly tried to maintain altitude by pointing the nose up.

"Dude, it's losing it," said one of the pilots, swearing.

"Yeah," said the other.

Our two flying aces could have saved themselves at that point. An automatic override began to pitch the nose down to gain speed and prevent a stall. Unfortunately, Jesse and Peter chose to overrule the override. Oops. The plane stalled.

"We don't have any engines," said one.

"You gotta be kidding me," said the other.

Jesse and Peter could still have saved themselves. They were within gliding range of five suitable airports. Unfortunately, they were too embarrassed to ask for help, reporting to the controller that they had lost only one of the two engines. They glided past all the airports. After gliding for 14 full minutes, drifting closer and closer to the ground at high speed, still unable to get the engines restarted, they finally asked for assistance: "We need direct to any airport. We have a double engine failure."

Unfortunately, it was too late. "We're going to hit houses, dude," one of pilots said, as they desperately tried to reach an airport in Jefferson City.

They missed the houses and the runway, crashing two and a half miles from the airport. Both men died in the crash.

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1. What was the altitude of the plane when the engines stalled?
 2. How much force was exerted on the pilot during the ascent?
 3. For how many seconds did they glide toward the ground before asking for assistance?
 4. The crash occurred how many kilometers from the airport?
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