

Where's the physics in the book The Martian?

Chapter 25 questions:

1. The 'transmission time' for communications between Earth and Mars is 14 minutes. How does this affect communications between Watney (The Martian) and NASA? Why is does it take so long for communications to go back and forth?

2. In preparation for the launch of the MAV (the escape vehicle), Watney is instructed to remove thousands of Kilograms of parts, including the nose-cone and the windows. Why is this NOT AN ISSUE with launching the vehicle into space?

3. What effect will removing all of the weight have on the launch itself?

4. Watney is quoted as saying he was "pissing rocket fuel". Why is this true?

5. The launch acceleration we be as great as 12 'g's'. (12 x the acceleration of gravity on Earth). Assuming that he weighs 170 lbs. on Earth, what will his weight be during launch?

Chapter 26 questions:

1. Seeing that the Mav was much lower in its orbit than was expected, what solution did the team on the rescue ship come up with? What was good about their solution and what was bad?

2. What effect will blowing the door lock off have on the rescue vehicle? What 'conservation' law is being put to use here?

3. Why does it not matter whether it's a big hole or a small hole with regard to the goal, of changing the rescue vehicles speed?

4. How much energy measured in joules, does 1 kg of sugar contain? How many sticks of dynamite is this equivalent too?

5. What does *sehr gefährlich* mean (use Google Translate, from German). Why does the scientist say this several times?

6. In the last lines of the book, Watney describes his smell. As possibly the most important question of the book, what did he smell like?