PHY131H1F "Introduction to Physics I"

A big part of this course is concepts. Concepts are covered directly on the tests and exam in some multiple choice questions, and concepts are also important to master before you can correctly solve worked some worked problems.

Below are my answers to some suggested End of Chapter Conceptual Questions in Knight. I do not give the explanations. These are just meant to reassure you once you have reasoned through the question yourself. *Please try these first before referring to the answers!* If you notice any mistakes in these answers please contact me and I will fix it. - - Jason Harlow November 25, 2011

1.1 (a) 3 (b) 3 (c) 3 (d) 2

1.7 position is negative, velocity is negative, acceleration is negative

2.8 (a) Yes, at 3 and 6 (b) Yes, between 4 and 5

2.10 Yes, if it is slowing down

2.12 (a) equal to g (b) equal to g (c) equal to g

4.4 (a) no (b) yes, at the top of the curved path

4.8 e > a = b = c = d

4.15 (a) $\omega+$, $\alpha+$ (b) $\omega-$, $\alpha+$ (c) $\omega+$, $\alpha-$ (d) $\omega-$, $\alpha-$

5.5 gravity (a) long range (b) Earth [also, if you don't neglect air resistance, there is drag (a) contact (b) air]

5.7 (a) 20 m/s^2 (b) 5 m/s^2 (c) 10 m/s^2

5.15 C

6.2 no

6.13 correct amount

6.19 yes

7.5 equal to

7.8 "You are right when you say the wagon exerts an equal but opposite force on you. However, both you and the wagon also experience friction forces from the ground. If the forward friction force on the bottom of your shoes is greater than the backward friction force of the ground on the wheels of the wagon, then both you and the wagon will accelerate forward!"

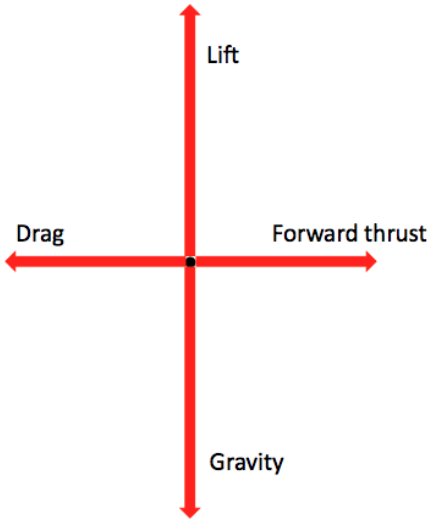
7.15 greater than

8.1 greater than

8.6 neither

8.7 (a) zero

8.7 (b)



8.7 (c)

9.6 Carlos.

9.13 (a) no (b) yes

9.14 (a) neither (b) Paula

10.6 4

10.11 d > c > a = b

10.14 (a) 6 [plus a local maximum at 3 which is less than the true maximum at 6] (b) yes 2 and 8 (c) yes at 1, 3, 4 or 6

11.5 equal distances

11.7 equal

11.12 gravitational potential energy → thermal energy

11.14 4

12.4 no

12.8 e > a = b > c = d > f

12.11 a = b > c = d

14. 4 (a) $-\pi/3$ (b) **1:** $5\pi/3$, **2:** $7\pi/3$, **3:** 3π

14.8 28 cm

14.12 The natural frequency is the frequency the oscillator would oscillate at if there were no outside periodic driving force acting on it. If there is an outside periodic driving force acting on the oscillator, the driving frequency is the frequency of this outside force.

15.2 a = b = c > d > f > e

15.6 a > c > b

15.9 equal