Week 2 Test

6 questions

1 point

1.
[#260] **Thunder and lightning.**

You see a sudden flash of light, then 6 seconds later you hear the thunder. Take the speeds of sound and light as $340\ \mathrm{m \cdot s^{-1}}$ and $3 \times 10^8\ \mathrm{m \cdot s^{-1}}$, respectively. How far away away was the lightning strike? Remember to think about significant figures.

The lightning strike was _____ km away.

(A reminder: This test is for assessment and, because the course runs on-demand, we cannot give you the answers and so you will not receive feedback on this test. If you can't do a question and you need feedback, we suggest that you go review the relevant lesson and then do the quiz: the quiz questions do have feedback.)

Enter answer here

1 point

2.
[#261] **Andromeda Galaxy**

The Andromeda galaxy is about 2.5 million light-years or $2.4 \times 10^{22}\ \mathrm{m}$ from our Milky Way galaxy, and the component of its velocity towards us is about $3.0 \times 10^5\ \mathrm{m \cdot s^{-1}}$. If it maintained this velocity component towards us, how long would it take to cover $2.4 \times 10^{22}\ \mathrm{m}$?

- about 1.3×10^9 years

- about 2.6×10^9 years
- about 6.5×10^3 years
- about 8.0×10^3 years

---

1 point

3.
[#262] **Keeping up the average**

You have boasted to your friends that you can ride your bicycle at 30 kph (km per hour) over a 30 km race comprising two 15 km laps. However, when you finish the first lap, your coach tells you that your average speed so far is only 15 kph. How fast must you ride to bring your average speed up to 30 kph.?

- between 30 and 40 kph
- between 40 and 50 kph
- between 50 and 60 kph
- between 60 and 100 kph
- faster than 100 kph

---

1 point

4.

[#263] **Catching up**

Jane's brother Andrew leaves home for school at 8:00 am. He walks at 3.9 kph. At 8:20 am Jane discovers that Andrew has left his homework at home. She decides to follow him on her bicycle and give him his homework, but she wants to be back home in time for an online test at 9 am. What is the minimum constant speed at which she needs to ride? (Hint: At what time of day will they meet?)

Jane must ride at least _____ kph.

Enter answer here

1 point

5.

[#264] **Speeding car**

A car accelerates with a constant acceleration of $1.2\ \mathrm{m \cdot s^{-2}}$ along a long straight road. How long does it take the car to accelerate from 100 kph to 110 kph, and how far does it travel while doing so? [Hint: watch your units and your significant figures. Because there is no other information, take the speeds as three significant figures.]

It takes _____ seconds to accelerate to 110 kph. While accelerating, the car travels _____ m.

Separate your answers with a comma. Example: a, b

Enter answer here

1 point

6.

[#265] **Hockey**

A (field) hockey player is running north at a speed of $8\ \mathrm{m}\cdot\mathrm{s}^{-1}$. A ball is coming directly towards her from the north at a speed of $18\ \mathrm{m}\cdot\mathrm{s}^{-1}$. She swings her stick forward, directly north, at a speed of $6\ \mathrm{m}\cdot\mathrm{s}^{-1}$ measured in her own frame of reference. What is the speed of the ball with respect to the hockey stick?

Relative to the hockey stick, the ball is travelling at ____ $\mathrm{m}\cdot\mathrm{s}^{-1}$.

Enter answer here

I understand that submitting work that isn't my own may result in permanent failure of this course or deactivation of my Coursera account. Learn more about Coursera's Honor Code

Aswini S

6 questions unanswered

Submit Quiz