Supervision 7
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Read the following sections of the handouts:

Section 35 - Section 38   Speed in Special Relativity

Deduce the following formula based on the Lorentz transformation. Make sure you can do so on your own WITHOUT the help of a textbook and understand each step before solving the questions on this problem sheet. Never rush to solve the questions!

1. The relativistic transformation of speeds

2. The reverse relativistic transformation of speeds

3. Length contraction

*According to Einstein's theory of special relativity, it states that " **The length of objects moving at relativistic speeds undergoes a contraction along the dimension of motion**". An observer who is at rest (relative to the moving object) would see the moving object to be shorter in length.*

4. Time dilation

*One of the many implications of Einstein's special relativity work is that time moves relative to the observer. An object in motion experiences time dilation, meaning that **when an object is moving very fast it experiences time more slowly than when it is at rest**.*

5. Relativistic Doppler Effects

As in Q18

Problem Sheet – Q14 - Q18