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Physics 2C, Winter 2020

Reading Assignment due Thursday 2/13: Submit via Gradescope by 11:30am

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1. Stop-to-Think 21.1 on page 574 of the textbook. In addition to answering the question in the textbook, for each of the four heat engines, calculate the efficiency according to equation (21.6).

2. The textbook is using Q_C for both engines and refrigerators. Explain what is similar about the two uses, and what is different. Note, there are also similar statements about the usage of Q_H, but let's focus on Q_C for this problem.

3. There are several equivalent definitions of the 2nd law of thermodynamics. Write down three of them that were discussed in sections 21.1-21.2.

4. Stop-to-Think 21.3 on page 580 of the textbook. In particular

    (a) What is the thermal efficiency of this heat engine?
    (b) Note that the textbook is using Q_C for both engines and refrigerators. Explain what is similar and what is different about the two uses.

For extra practice (not due): From Chapter 21 of Knight, 4th edition: Conceptual Questions: 1-5. Exercises: 1-5, 9-21.