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| **Problem 21.10** |
| |  |  | | --- | --- | | Part A |  | | What are the three longest wavelengths for standing waves on a 171-{\rm cm}-long string that is fixed at both ends?  **Enter your answers in descending order separated by commas.**   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | ANSWER: | |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | \lambda_1, \lambda_2, \lambda_3 = | ***Answer not displayed*** | {\rm m} |  | | | | | Part B |  | | If the frequency of the second-longest wavelength is 59 {\rm Hz}, what is the frequency of the third-longest wavelength?  **Express your answer using two significant figures.**   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | ANSWER: | |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | f_3 = | ***Answer not displayed*** | {\rm Hz} |  | | | | |

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| **Problem 21.39** |
| A guitar string with a linear density of 2.00 g/m is stretched between supports that are 60.0 cm apart. The string is observed to form a standing wave with three antinodes when driven at a frequency of 440 Hz.   |  |  | | --- | --- | | Part A |  | | What is the frequency of the fifth harmonic of this string?   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | ANSWER: | |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  | **733** ***Correct*** | Hz |  | | | | | Part B |  | | What is the tension in the string?   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | ANSWER: | |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  | ***Answer not displayed*** | N |  | | | | |