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AP Physics 2 Review Questions

Integrating Content, Inquiry and Reasoning

1. List the measured objects from the data table in order from smallest width to largest. How did the diffraction pattern change from one object to the next?

2. The diameter of human hair varies, but is usually in the range of 20–180 µm. Did the experimental value obtained fall within this range? Compare your results with other groups. Does there seem to be a relationship between hair color and width? Explain.

3. The diameter of a 30-gauge copper wire is 0.255 mm. (a) How does the measured width of the copper wire compare to the accepted width? (b) Calculate the percent error between the measured and accepted values for the width of the wire.
   (c) What are some possible sources of error in this experiment?

4. Is it possible to measure the width of a wider object such as a cell phone by this process? Explain.

5. Consider an archer on a range. The archer fires ten arrows at a circular target. One of the arrows comes close to the bull's eye but does not hit it. The other nine arrows contact the target in close proximity to each other but away from the bull's eye. Describe the accuracy and precision associated with the archer's shots.

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