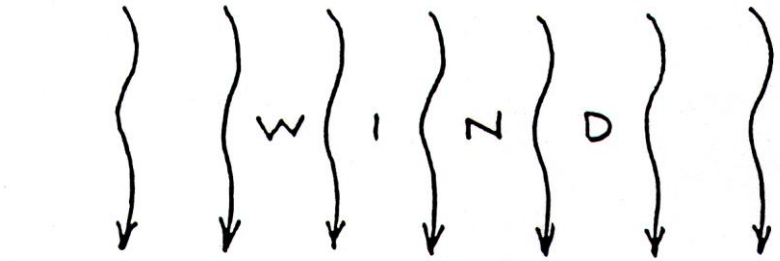
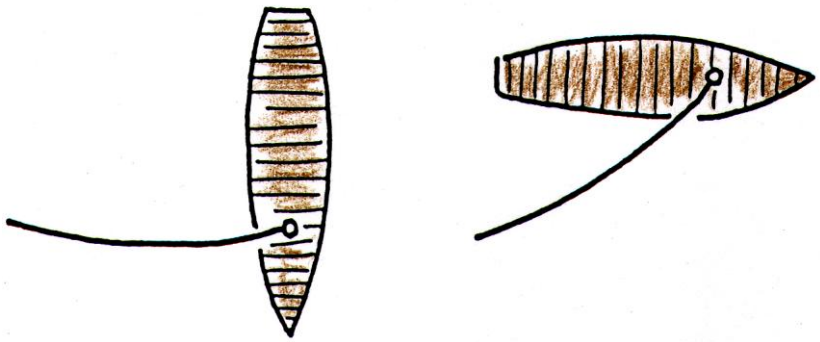
NEXT-TIME QUESTION

Sailing is fun, especially on a windy day. Consider the top views of the two boats below, one sailing with the wind, and the other across the wind. Which can sail faster than wind speed?





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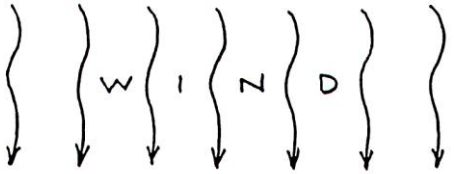

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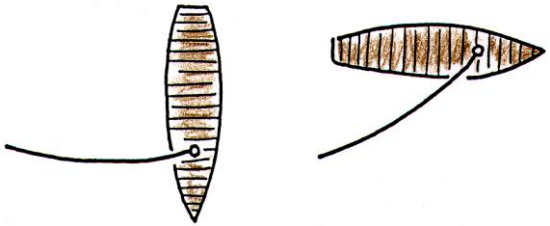

Answer:

The boat that sails directly with the wind can sail no faster than wind speed. Why? Even sailing as fast as the wind, there would be no wind impact against the sail. It would sag. But when sailing crosswind, there would still be wind impact against the sail, and speeds greater than wind speed can be achieved.

(Why will the sail also sag when at an angle of 45° and the boat travels crosswind at wind speed?)