

Questions 5 – 8

A scaled drawing is not necessary but a sketch is required for each problem.

- 5) A plane's engine is pushing it east with a speed of 50 m/s. The wind is pushing the plane west with a speed of 20 m/s. What is the final velocity of the plane? What is its velocity on the return flight if the wind is constant?

- 6) A fishing boat trolling for bluefish travels 70 m east and then heads north. The boat stops when it is 120 m from its starting position. How far north did the boat sail? If it sails home by retracing its path, what will be the total distance traveled?

- 7) A plane's engine is pushing it east with a speed of 80 m/s. The wind is blowing north. How fast is the wind blowing if the final velocity of the plane is 95 m/s in a northeast direction?

- 8) A boat wishes to go directly across a river (north) whose current is 5 m/s east. The boat is capable of moving at 13 m/s in still water. In which direction should the boat head so that it can travel straight across the river? What will be its velocity as measured from the shore?

Answers

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| 1) 80 m, 40 m W | 5) 30 m/s E, 70 m/s W |
| 2) 130 m, 94 m SE | 6) 97.5 m N, 335 m |
| 3) 108 m/s NE | 7) 51.2 m/s N |
| 4) 67.1 m SW | 8) NW, 12 m/s |