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1. Mitchell swims due east at a speed of 3.5 feet per second across a river directly toward the opposite bank. At the same time, the current of the river is carrying him due south at a rate of 2 feet per second.

(a) Find Mitchell's resultant speed.

(b) Find Mitchell's bearing relative to the shore.

2. While playing golf, Anna hits a ball at a speed of 40 mph. The bearing of the ball's path is $E35^{\circ}N$. At the time, a 5 mph wind is blowing due east. Find the resulting speed and direction of Anna's ball.

3. Joe and Sally hiked 3.75 kilometers to a lake located $S55^{\circ}E$ of their campsite. Then they hiked $N33^{\circ}W$ to the nature center which was 5.6 kilometers from the lake. Where is the nature center in relation to their campsite? That is, what is the distance and direction to the nature center from their campsite?

4. A glider is traveling at an air speed of 15 mph due west. If the wind is blowing at 5 mph with a bearing of $N60^{\circ}E$, what is the resulting speed of the glider?

5. Sonya is swimming due west at a rate of 1.5 meters per second. A strong current is flowing $S20^{\circ}E$ at a rate of 1 meter per second. Find Sonya's resulting speed and bearing.

Answers:

1) 4.03 ft/sec; $E 29.74^{\circ} S$

2) 44.19 mph; $E 31.27^{\circ} N$

3) 2.55 km; $E 89.55^{\circ} N$

4) 10.96 mph

5) 1.49 mps; $W 39.02^{\circ} S$