P3.4 Boat Crossing River Problems

149 s 122 m 3.59 m/s 13.2^{o} DS 4.76 m/s 24.8 m	**1. a-c: A boat with a velocity in still water of 3.50 m/s points straight across a 520. m wide river with a current of 0.820 m/s** a. What time will it take to cross the river? b. How far downstream will the boat be carried in crossing the river? c. What is the velocity (in angle magnitude notation) of the boat as it moves across the river? Draw a picture of the velocity. **d-e: A boat pointed straight across a 257 m wide river crosses it in 54.0 s. The river has a current of 0.460 m/s.** d. What is the speed of the boat with respect to the water? e. How far downstream will the boat be carried in crossing the river?
66.0 s 87.2 m 2.52 m/s, 31.5^{o} DS 2.57 m/s 0.533 m/s	**2. a-c: A boat that can go 2.15 m/s points straight across a 142.0 m wide river with a current of 1.32 m/s** a. What time will it take to cross? b. How far downstream will the boat be carried in this time? c. What is the velocity (in angle magnitude notation) of the boat as it moves across the river? Draw a picture of the velocity. **d-e: A boat takes 43.5 s to cross a river when it points straight across. The river is 112 m wide, and the boat is carried downstream 23.2 m in crossing.** d. What is the speed of the boat with respect to the water? e. What is the speed of the current?
67.1 s 194 m 3.10 m/s 21.2^{o} DS 391 m 104 m	**3. a-c: A boat with a velocity (in still water) of 2.89 m/s points straight across river with a current of 1.12 m/s In doing this it is carried downstream 75.1 m.** a. What time does it take to cross? b. How wide is the river? c. What is the velocity (in angle magnitude notation) of the boat as it moves across the river? Draw a picture of the velocity. **d-e: A boat has a velocity of 5.43 m/s (in still water) is pointed straight across a river with a current of 1.45 m/s. The boat makes the crossing in 72.0 s.** d. How wide is the river? e. How far downstream will the boat be carried in crossing the river?
19.7 s 1.21 m/s 4.67 m/s, 15.0^{o} DS 2.92 m/s 0.901 m/s	**4. a-c: A boat with a speed of 4.51 m/s points straight across a 89.0 m wide river and is carried downstream 23.8 m in crossing.** a. What time does it take to cross the river? b. What is the speed of the current? c. What is the velocity (in angle magnitude notation) of the boat as it moves across the river? Draw a picture of the velocity. **d-e: A boat takes 87.0 s to cross a river when it points straight across. The river is 254 m wide, and the boat is carried downstream 78.4 m in crossing.** d. What is the speed of the boat with respect to the water? e. What is the speed of the current?
52.7 s 2.81 m/s 3.07 m/s, 23.8^{o} DS 287 m 1.68 m/s	**5. a-c: A boat points straight across a 148 m wide river with a current of 1.24 m/s. In crossing it is carried downstream a distance of 65.3 m.** a. What time did it take to cross? b. What is the speed of the boat with respect to the water? c. What is the velocity (in angle magnitude notation) of the boat as it moves across the river? Draw a picture of the velocity. **d-e: A boat pointed straight across has a velocity of 5.21 m/s with respect to the water, and crosses in 55.0 s. In crossing the boat is carried downstream a distance of 92.4 m.** d. How wide is the river? e. What is the speed of the current?