

Name: _____ Course Location: _____ Date: _____

US SAILING

Small Boat Sailing Instructor - Sailing Theory

Review Questions

There are 98 questions, including multiple choice and matching. Read each one carefully and select the best answer. There is one best answer for each question. Keep the review questions for later reference.

MULTIPLE CHOICE

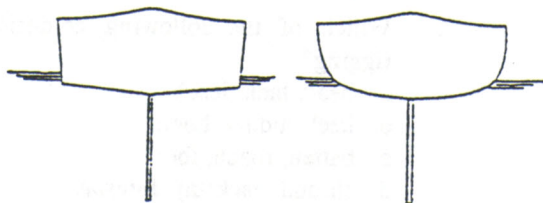
In this section circle the best answer from the alternatives presented. There is one best answer to each question.

1. Single-masted sailboats are either
 - a. yawls, ketches, or schooners.
 - b. sloops, mizzens, or cutters.
 - c. frigates, catboats, or clippers.
 - d. sloops, catboats, or cutters.
2. Which of the following comprise the standing rigging?
 - a. head, tack, leech
 - b. keel, rudder, boom
 - c. batten, roach, foot
 - d. shroud, backstay, forestay
3. Luff telltales which stream straight back indicate
 - a. wind velocity.
 - b. smooth air flow.
 - c. turbulent air flow.
 - d. no air flow.
4. A sailboat cannot sail closer than approximately
 - a. 45 degrees to the wind.
 - b. 60 degrees to the wind.
 - c. 90 degrees to the wind.
 - d. Wind angle doesn't matter.
5. Sails are sheeted in tight on a
 - a. downwind course.
 - b. beam reach.
 - c. close-hauled course.
 - d. broad reach.
6. A "header" describes
 - a. when the boom accidentally hits your head.
 - b. the boat's powder room.
 - c. when the wind shifts towards the bow.
 - d. the top of the sail.
7. When on a run, you should be concerned about
 - a. an accidental tack.
 - b. an accidental jibe.
 - c. coming about.
 - d. coming head-to-wind.
8. Luff telltales are most effective when sailing
 - a. upwind.
 - b. downwind.
 - c. in light wind.
 - d. in the "No-Go Zone."
9. Hypothermia describes a condition where
 - a. the body gets too hot.
 - b. the body gets too excited.
 - c. the body gets too cold.
 - d. water temperatures are below 40 degrees Fahrenheit.
10. Which of the following is not a treatment for mild hypothermia?
 - a. Wrap in protective layer.
 - b. Remove from elements.
 - c. Administer alcohol.
 - d. Give warm broth, if fully conscious.
11. For most anchoring situations, a scope of X:1 is best. X=
 - a. 7
 - b. 20
 - c. 2
 - d. 15
12. When entering harbor, green buoys should be left to
 - a. port.
 - b. lee.
 - c. starboard.
 - d. windward.
13. A reef describes
 - a. the depth built into a sail when it is cut.
 - b. a method of reducing sail area.
 - c. an insert along the leech for stability.
 - d. a type of block.

14. Generally, bad weather comes from
 - a. high pressure systems.
 - b. low pressure systems.
 - c. full moon.
 - d. none of the above.
15. Apparent wind can be indicated by
 - a. smoke from a chimney.
 - b. a flag onshore.
 - c. a and b.
 - d. none of the above.
16. "The stern crosses the wind" describes
 - a. tacking.
 - b. jibing.
 - c. capsizing.
 - d. docking.
17. The curvature, or depth, built into a sail is its
 - a. aspect ratio.
 - b. luff tension.
 - c. jib lead.
 - d. draft.
18. Life jackets (PFDs) are approved by which government agency?
 - a. Department of the Navy
 - b. National Oceanic and Atmospheric Administration (NOAA)
 - c. United States Coast Guard
 - d. American Red Cross
19. Reducing sail area in heavy winds will affect
 - a. weather helm.
 - b. boat speed.
 - c. angle of heel.
 - d. all of the above.
20. A sailboat is on the _____ tack when the wind is blowing from the starboard side, and the mainsail is set to port.
 - a. starboard
 - b. port
 - c. Can be either of the above, depending on conditions.
 - d. windward

21. Section A of the diagram depicts
 - a. beating.
 - b. running.
 - c. head-to-wind.
 - d. broad reaching.
22. Boat B of the diagram is
 - a. beating.
 - b. running.
 - c. reaching.
 - d. broad reaching.
23. Boat C of the diagram is
 - a. beating.
 - b. running.
 - c. reaching.
 - d. head-to-wind.
24. Boat D of the diagram is
 - a. beating.
 - b. running.
 - c. reaching.
 - d. broad reaching.
25. Boat E of the diagram is
 - a. head-to-wind.
 - b. beating.
 - c. reaching.
 - d. running.

26. The two hull designs are called:
 - a. keel and flat.
 - b. hard chine and round/smooth.
 - c. angular and fair.
 - d. hard chine and fair.

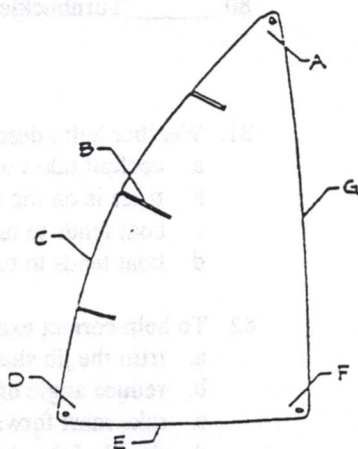


27. What theoretical force's focal point moves when the centerboard is raised or lowered?
 - a. center of longitudinal resistance
 - b. center of motion
 - c. center of lateral resistance
 - d. center of effort
28. Steering can be accomplished by
 - a. rudder.
 - b. body weight.
 - c. sails.
 - d. all of the above.
29. The stays and shrouds are all part of the
 - a. working rigging.
 - b. running rigging.
 - c. master rigging.
 - d. standing rigging.
30. What is the theoretical focal point of all forces on the sail?
 - a. center of gravity
 - b. center of motion
 - c. center of lateral resistance
 - d. center of effort

31. What is a good knot for putting a non-slip loop in a line?
 a. half hitch b. bowline
 c. square knot d. figure 8
32. The forward edge of the mainsail is the
 a. leech. b. foot.
 c. luff. d. clew.
33. When smooth air flow is established along both sides of a sail, the force it creates _____ the boat forward and sideways.
 a. pushes b. stops
 c. stalls d. pulls
34. When sailing on a dead run, the air flow on a sail _____ the boat through the water.
 a. pushes b. drags
 c. stalls d. pulls
35. Small centerboard sailboats can sail
 a. in any direction at any given moment.
 b. directly into the wind.
 c. at approximately 45 degrees to the direction from which the wind is coming.
 d. at approximately 12 degrees to the direction from which the wind is coming.
36. When sailing to windward, a sailboat's jib
 a. does nothing useful.
 b. channels air across the leeward side of the mainsail.
 c. slows the boat down.
 d. prevents leeward slippage.
37. Changing direction toward the wind is
 a. heeling. b. jibing.
 c. heading up. d. beating.

Name the part of the sail:

38. A _____
 39. B _____
 40. C _____
 41. D _____
 42. E _____
 43. F _____
 44. G _____



45. When sailing in heavy air, the first step in reducing power is to
 a. change sail area.
 b. ease the mainsail.
 c. change aspect ratio.
 d. do none of the above.
46. The most efficient way to reduce a sail's drive in heavy air is to keep it
 a. full. b. luffing.
 c. flat. d. doing none of the above.
47. The actual wind's speed and direction is called
 a. the apparent wind. b. the velocity.
 c. the true wind. d. a header.
48. A block and tackle system, secured to the boom which prevents it from lifting and is used to flatten the mainsail, is the
 a. cunningham. b. outhaul.
 c. boom vang. d. downhaul.
49. The line used to adjust the tension along the foot of the sail is the
 a. cunningham. b. outhaul.
 c. boom vang. d. downhaul.
50. When sailing downwind, the "pushing" force on the sail is increased, and the "pulling" force
 a. is increased.
 b. is decreased.
 c. stays the same.
 d. depends on the wind conditions.
51. Bernoulli's Principle, when applied to a sail, explains
 a. static air flow. b. dynamic angle of attack.
 c. lift. d. all of the above.
52. Why is sailboat terminology important?
 a. It allows sailors to say exactly what they mean.
 b. It helps reduce confusion on the boat.
 c. Terminology is not important.
 d. a and b
53. The struts, located about half way up the mast, which hold the shrouds are called
 a. chainplates. b. spreaders.
 c. mast flies. d. blocks.
54. The fitting which attaches the boom to the mast is the
 a. cunningham. b. boom vang.
 c. gooseneck. d. clevis pin.
55. Which of the following is not used to control a sail on a small sailboat?
 a. sheet b. shroud
 c. halyard d. cunningham

56. What is the best advantage of using a cam cleat?

- a. It is inexpensive.
- b. It holds large diameter lines.
- c. It can be released quickly.
- d. It has two cleats instead of one.

57. What does a fairlead do?

- a. Tells wind direction.
- b. Adjusts centerboard position.
- c. Provides mechanical advantage.
- d. Changes or maintains a line's direction.

58. When tightened, the boom vang affects the

- a. aspect ratio.
- b. traveller.
- c. barber hauler.
- d. leech.

59. When sailing close-hauled without a centerboard, a sailboat will

- a. slide to leeward.
- b. slide to windward.
- c. capsize.
- d. slide backwards.

60. When sailing close-hauled, the centerboard position of the sloop-rigged boat under mainsail alone should be

- a. all the way down.
- b. three-quarters down.
- c. three-quarters up.
- d. all the way up.

Match each item below with the illustration:

61. _____ Rudder

62. _____ Forestay

63. _____ Mast

64. _____ Centerboard

65. _____ Bow

66. _____ Starboard Shroud

67. _____ Transom

68. _____ Tiller

69. _____ Tiller extension

70. _____ Hull

71. _____ Centerboard trunk

72. _____ Main Sheet

73. _____ Port Shroud

74. _____ Mainsail

75. _____ Jib Halyard

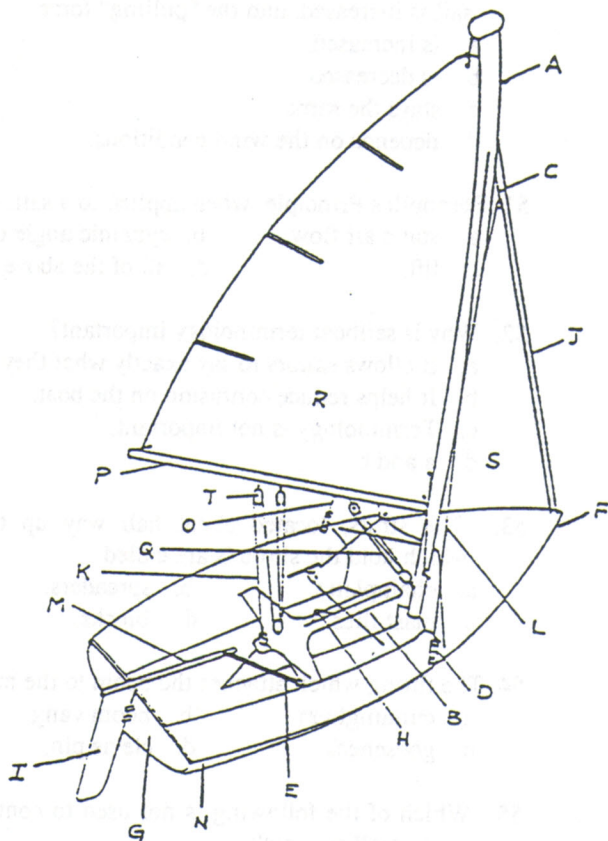
76. _____ Boom Vang

77. _____ Boom

78. _____ Block

79. _____ Jib

80. _____ Turnbuckle



81. Weather helm describes a condition where the

- a. cockpit takes on water.
- b. tiller is on the same side as the sails.
- c. boat tends to turn toward the wind.
- d. boat tends to turn away from the wind.

82. To help correct excessive weather helm,

- a. trim the jib sheet or set a larger jib.
- b. reduce angle of heel.
- c. rake mast forward and raise centerboard slightly.
- d. do all of the above.

83. To help correct excessive lee helm,
 - a. heel the boat to leeward.
 - b. move weight forward.
 - c. tighten the leech of the mainsail.
 - d. do all of the above.
84. The actual wind speed and direction felt onboard a moving boat is
 - a. the true wind.
 - b. the apparent wind.
 - c. the fastest a boat can sail.
 - d. equal to the hull speed.
85. When two boats are on the same tack, the
 - a. windward boat must keep clear.
 - b. leeward boat must keep clear.
 - c. faster boat must keep clear.
 - d. slower boat must keep clear.
86. When two boats are on the same tack and one boat is overtaking another, which boat must keep clear?
 - a. the overtaking boat
 - b. the slower boat
 - c. the bigger boat
 - d. the smaller boat
87. When tacking, the tiller is
 - a. moved away from the sail.
 - b. held straight.
 - c. moved toward the sail.
 - d. moved to windward.
88. When rigging the sail, the halyard is attached to the
 - a. foot. b. clew.
 - c. head. d. tack.
89. When hoisting sails, the bow of the boat should be pointing
 - a. away from the wind.
 - b. 90 degrees to the wind.
 - c. head-to-wind.
 - d. anywhere since wind relationship does not matter.
90. When hoisting sails at a mooring, it is usually best to raise
 - a. the mainsail first.
 - b. the jib first.
 - c. both at the same time.
 - d. either sail first.
91. Which knot is best for putting a "stopper" at the end of the jib sheet?
 - a. two half hitches
 - b. bowline
 - c. clove hitch
 - d. figure 8
92. Moving the jib lead position forward affects
 - a. the lower part of the sail.
 - b. the foot of the sail.
 - c. the upper part of the sail.
 - d. all of the above.
93. Tightening the boom vang
 - a. increases mainsail twist.
 - b. reduces mainsail twist.
 - c. tensions the mainsail luff.
 - d. brings the boom toward the centerline.
94. Most modern working sails are made of
 - a. cotton. b. nylon.
 - c. dacron. d. kevlar.
95. In a dinghy turbulent water flow is reduced by
 - a. sitting aft in the boat.
 - b. rocking the boat.
 - c. heeling the boat more than 20 degrees.
 - d. keeping the boat flat.
96. Vertical wrinkles along the luff of the mainsail indicate too much
 - a. halyard or cunningham tension.
 - b. outhaul tension.
 - c. main sheet tension.
 - d. boom vang tension.
97. Scallops and horizontal wrinkles along the luff of the jib indicate
 - a. improper sheet tension.
 - b. incorrect lead position.
 - c. too little halyard tension.
 - d. too much wind for the sail.
98. Battens support the _____ of the mainsail.
 - a. foot b. luff
 - c. draft d. leech

