1. 2905 Ref: Stability, Ballasting A
The principal action in changing from transit to survival draft in the event heavy weather threatens is _____.
A. ballasting
B. deballasting
C. disconnecting
D. hanging off

2. 834 Ref: Stability, Buoyancy A
Buoyancy is a measure of the ship's _____.
A. ability to float
B. deadweight
C. freeboard
D. midships strength

3. 1602 Ref: Stability, Buoyancy B
Intact buoyancy is a term used to describe _____.
A. the volume of all intact spaces above the waterline
B. an intact space below the surface of a flooded area
C. an intact space which can be flooded without causing a ship to sink
D. the space at which all the vertical upward forces of buoyancy are considered to be concentrated

4. 2199 Ref: Stability, Buoyancy A
The center of volume of the immersed portion of the hull is called the _____.
A. center of buoyancy
B. center of flotation
C. center of gravity
D. tipping center

5. 3289 Ref: Stability, Buoyancy A
The upward pressure of displaced water is called _____.
A. buoyancy
B. deadweight
C. draft
D. freeboard

6. 4559 Ref: Stability, Buoyancy D
Which would NOT provide extra buoyancy for a vessel with no sheer?
A. Lighter draft
B. Raised forecastle head
C. Raised poop
D. Higher bulwark

7. 580 Ref: Stability, Buoyancy, Reserve A
Addition of weight to a vessel will ALWAYS _____.
A. reduce reserve buoyancy
B. increase righting moments
C. increase GM
D. All of the above

8. 2026 Ref: Stability, Buoyancy, Reserve A
Reserve buoyancy is _____.
A. the watertight part of a vessel above the waterline
B. the void portion of the ship below the waterline which is enclosed and watertight
C. transverse watertight bulkheads
D. a measure of metacentric height

9. 2027 Ref: Stability, Buoyancy, Reserve D
Reserve buoyancy is _____.
A. also called GM
B. the void portion of the ship below the waterline which is enclosed and watertight
C. affected by the number of transverse watertight bulkheads
D. the watertight portion of a vessel above the waterline

10. 3307 Ref: Stability, Buoyancy, Reserve C
The volume of a vessel's intact watertight space above the waterline is its _____.
A. free surface
B. marginal stability
C. reserve buoyancy
D. freeboard

11. 4280 Ref: Stability, Buoyancy, Reserve D
Which is an indication of reserve buoyancy?
A. Metacentric height
B. Righting moment
C. Rolling period
D. Freeboard

12. 1126 Ref: Stability, Buoyancy, Reserve, Freeboard B
Freeboard is measured from the upper edge of the _____.
A. bulwark
B. deck line
C. gunwale bar
D. sheer strake

13. 2144 Ref: Stability, Buoyancy, Reserve, Freeboard D
The amount of freeboard which a ship possesses has a tremendous effect on its _____.
A. initial stability
B. free surface
C. permeability
D. stability at large angles of inclination

14. 2542 Ref: Stability, Buoyancy, Reserve, Freeboard B
The distance between the waterline of a vessel and the main deck is called _____.
A. draft
B. freeboard
C. buoyancy
D. camber

15. 3350 Ref: Stability, Buoyancy, Reserve, Freeboard B
To increase the extent of flooding your vessel can suffer without sinking, you could _____.
A. ballast the vessel
B. increase reserve buoyancy
C. lower the center of gravity
D. raise the center of gravity

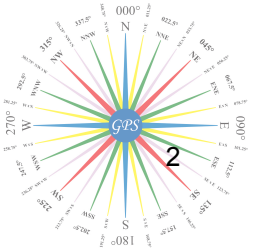
16. 2624 Ref: Stability, Center of floatation D
The geometric center of the waterplane area is called the _____.
A. center of buoyancy
B. center of gravity
C. metacenter
D. center of flotation

17. 1124 Ref: Stability, Communication A
Free communication effect is in direct proportion to _____.
A. length and width of space
B. length of space only
C. width of space only
D. neither length nor width

18. 1125 Ref: Stability, Communication A
Free communication will adversely affect transverse stability only when the flooded space is _____.
A. off-center
B. on the centerline
C. completely flooded
D. open to the sea above and below the waterline

19. 2797 Ref: Stability, Communication C
The most detrimental effect on initial stability is a result of liquids _____.
A. flowing from side to side within the vessel
B. flowing from fore to aft within a vessel
C. flowing in and out of a holed wing tank
D. pocketing in a slack tank as a vessel heels

20. 3361 Ref: Stability, Communication D
To prevent loss of stability from free communication flooding you should _____.
A. close the cross-connection valve between the off-center tanks
B. completely flood high center tanks
C. ballast double bottom wing tanks
D. close any opening to the sea in an off-center tank



21. 2874 Ref: Stability, Compartment, Permeability C
The percentage of the total surface area or volume of a flooded compartment that can be occupied by water caused by damage is known as _____.
A. one compartment standard
B. center of flotation
C. permeability
D. form gain

22. 441 Ref: Stability, Compartment, Two D
A vessel is described as a two compartment vessel when it _____.
A. has no more than two compartments
B. has two compartments in addition to the engine room
C. will sink if any two compartments are flooded
D. will float if any two adjacent compartments are flooded

23. 2541 Ref: Stability, Construction C
The distance between the bottom of the hull and the waterline is called _____.
A. tonnage
B. reserve buoyancy
C. draft
D. freeboard

24. 5147 Ref: Stability, Construction D
Your vessel is damaged, listing to port and on occasion flopping to the same angle to starboard. It has a long, slow, sluggish roll around the angle of list. There is excessive trim by the stern with little freeboard aft. What action should you take FIRST to correct this situation?
A. Jettison any off-center topside weights to lower GM and correct the list.
B. Pump out any slack after double-bottom tanks to reduce free surface and increase freeboard aft.
C. Pump out the after peak and fill the forepeak to change the trim.
D. Press up any slack double-bottom tanks forward of the tipping center, then fill the forepeak if empty.

25. 413 Ref: Stability, Damage C
A vessel aground may have negative GM since the _____.
A. decrease in KM is equal to the loss of draft
B. virtual rise of G is directly proportional to the remaining draft
C. displacement lost acts at the point where the ship is aground
D. lost buoyancy method is used to calculate KM, and KB is reduced

26. 414 Ref: Stability, Damage D
A vessel aground may have negative GM since the _____.
A. decrease in KM is equal to the loss of draft
B. virtual rise of G is directly proportional to the remaining draft
C. lost buoyancy method is used to calculate KM, and KB is reduced
D. displacement lost acts at the point where the ship is aground

27. 508 Ref: Stability, Damage B
Aboard damaged vessels, the MOST important consideration is preserving _____.
A. bilge pumping capacity
B. reserve buoyancy
C. level attitude
D. instability

28. 902 Ref: Stability, Damage C
Damage stability is the stability _____.
A. which exists when the wind speed is less than 50 knots
B. before collision
C. after flooding
D. at the maximum load

29. 941 Ref: Stability, Damage C
During counterflooding to correct a severe list aggravated by an off-center load, your vessel suddenly takes a list or trim to the opposite side. You should _____.
A. continue counterflooding in the same direction
B. continue counterflooding, but in the opposite direction
C. immediately stop counterflooding
D. deballast from the low side

30. 1414 Ref: Stability, Damage A
If your vessel is aground at the bow, it would be preferable that any weight removals be made from the _____.
A. bow
B. mid-section
C. stern
D. All of the above

31. 3236 Ref: Stability, Damage D
The stability which remains after a compartment is flooded is called _____.
A. intact stability
B. initial stability
C. immersion stability
D. damage stability

32. 4707 Ref: Stability, Damage B
With damaged floating vessels, the most important consideration is the preservation of _____.
A. bilge pumping capacity
B. reserve buoyancy
C. level attitude
D. instability

33. 4839 Ref: Stability, Damage C
You are on the SS American Mariner and involved in a collision. Your draft has increased uniformly and there is about 4 feet of freeboard remaining. The vessel is on an even keel and has a long rolling period. The roll is sluggish, and the vessel hangs at the ends of a roll. Which of the following actions would you take first to correct the situation?
A. Pump out a slack double bottom tank to reduce free surface.
B. Flood any empty double bottom tanks to decrease KG.
C. Jettison topside weights to increase freeboard.
D. Pump out flooding water in the cargo holds to reduce free surface.

34. 5129 Ref: Stability, Damage D
Your vessel has been holed in #1 hold and partially flooded. The hole is plugged against further flooding. In calculating the effect of the flooding on your transverse stability, you should use which method?
A. Compartment standard method
B. Lost buoyancy method
C. Factor of subdivision method
D. Added weight method

35. 5130 Ref: Stability, Damage C
Your vessel has been in a collision. After assessing the damage, you begin down flooding. This will cause the KB to do what?
A. Fall
B. Remain stationary
C. Rise
D. Shift to the high side

36. 5140 Ref: Stability, Damage D
Your vessel is damaged and is listing to port. The rolling period is short. There is sufficient freeboard so that deck edge submersion is not a problem. What corrective action should be taken FIRST in regard to the vessel's stability?
A. Press up any slack double-bottom tanks to eliminate free surface
B. Flood any empty double-bottom tanks to add weight low and down
C. Jettison topside weights to reduce KG and KB
D. Shift any off-center weights from port to starboard

37. 5141 Ref: Stability, Damage D
Your vessel is damaged and listing to port. The rolling period is long, and the vessel will occasionally assume a starboard list. Which action should you take FIRST?
A. Fill an empty double bottom tank on the starboard side
B. Transfer all possible movable weights from port to starboard
C. Pump out ballast from the port and starboard double bottom tanks
D. Press up a slack centerline double bottom tank

38. 5142 Ref: Stability, Damage C
Your vessel is damaged and listing to port. There is a short rolling period around the angle of list. The port side freeboard is reduced to 1 foot. There is no trim and the weather is calm. You should FIRST _____.
A. press up a slack double bottom tank on the port side
B. fill an empty centerline double bottom tank
C. pump out a slack marine portable tank located on the portside amidships
D. jettison the anchors and anchor cables

39. 5143 Ref: Stability, Damage A
Your vessel is damaged and on an even keel. There is no trim. The freeboard is reduced to less than 1 foot. The rolling period is very long, and the vessel is sluggish in returning from a roll. Which action would you take FIRST to improve stability?
A. In calm seas lower the lifeboats to the water and keep them alongside.
B. Rig the jumbo boom and use it to jettison heavy deck cargo.
C. Press up a centerline double bottom that is now filled to 15% capacity.
D. Pump out the peak tanks simultaneously.

40. 5144 Ref: Stability, Damage A
Your vessel is damaged and partially flooded. It is listing 12° to port and trimmed 8 feet down by the head. It has a long, slow, sluggish roll. Which action should you take FIRST?
A. Press up an after, slack, centerline double bottom tank
B. Pump out the forepeak tank
C. Jettison the anchors and anchor cables
D. Jettison deck cargo from the port side

41. 5145 Ref: Stability, Damage C
Your vessel is damaged with no list, but down by the stern. There is progressive flooding and trim by the stern is increasing. What is the effect on transverse stability after the deck edge at the stern is submerged?
A. KB increases, increasing BM and therefore GM
B. KG increases due to the weight of the added water on deck
C. BM decreases from loss of water plane and greater volume.
D. There is no effect on transverse stability.

42. 5146 Ref: Stability, Damage B
Your vessel is damaged, and there is no list or trim. The rolling period is short. The freeboard before the damage was 12'02" (3.7 meters). It is now reduced to 3'-00"(1 meter). Which action would you take FIRST?
A. Press up a slack centerline double bottom tank
B. Pump out an amidships centerline ballast tank
C. Transfer ballast from the peak tanks to an amidships centerline tank
D. Pump out the marine potable tank located on the starboard side amidships

43. 5159 Ref: Stability, Damage B
Your vessel is listing 4° to port and has a short rolling period. There is loose firefighting water in the hull. The ship is trimmed down by the head with one foot of freeboard at the bow. Which action should you take FIRST?
A. Press up the slack NO.1 starboard double bottom tank.
B. Pump out the forepeak tank.
C. Eliminate the water in the 'tween decks aft.
D. Jettison stores out of the paint locker in the forecastle.

44. 3313 Ref: Stability, Displacement B
The weight of the liquid displaced by a vessel floating in sea water is equal to the _____.
A. weight required to sink the vessel
B. total weight of the vessel
C. displaced volume
D. reserve buoyancy

45. 454 Ref: Stability, Drag B
A vessel trimmed by the stern has a _____.
A. list
B. drag
C. set
D. sheer

46. 246 Ref: Stability, Free surface D
A partially full tank causes a virtual rise in the height of the _____.
A. metacenter
B. center of buoyancy
C. center of flotation
D. center of gravity

47. 394 Ref: Stability, Free surface D
A tank which carries liquid is dangerous to the stability of a vessel when it is _____.
A. low in the vessel
B. completely empty
C. completely full
D. slack

48. 481 Ref: Stability, Free surface B
A virtual rise in the center of gravity may be caused by _____.
A. filling a partially filled tank
B. using fuel from a pressed fuel tank
C. emptying a partially filled tank
D. transferring ballast from the forepeak to the after peak

49. 576 Ref: Stability, Free surface D
Adding the FSCL to KG yields _____.
A. KM
B. GM
C. KGT
D. KGL

50. 755 Ref: Stability, Free surface B
As the displacement of a vessel increases, the detrimental effect of free surface _____.
A. increases
B. decreases
C. remains the same
D. may increase or decrease depending on the fineness of the vessel's form

51. 1579 Ref: Stability, Free surface B
Increasing free surfaces has the effect of raising the _____.
A. uncorrected KG
B. virtual height of the center of gravity
C. metacenter
D. metacentric height

52. 1581 Ref: Stability, Free surface C
Increasing the number of slack liquid tanks has the effect of raising the _____.
A. uncorrected KG
B. maximum allowed KG
C. virtual height of the center of gravity
D. metacentric height

53. 1661 Ref: Stability, Free surface C
Many vessels are provided with flume tanks, which also have a dump tank located under the flume tanks. In the event the ship is damaged, you could dump the flume tanks into the dump tank which would _____.
A. reduce the free surface effect and raise the KG
B. not have any effect on free surface and raise the KG
C. reduce the free surface effect and lower the KG
D. not have any effect on free surface and lower the KG

54. 1682 Ref: Stability, Free surface D
Movement of liquid in a tank when a vessel inclines causes an increase in _____.
A. righting arm
B. metacentric height
C. metacentric radius
D. natural rolling period

55. 1998 Ref: Stability, Free surface B
Reducing free surfaces has the effect of lowering the _____.
A. uncorrected KG
B. virtual height of the center of gravity
C. metacenter
D. metacentric height

56. 2554 Ref: Stability, Free surface B
The effect of free surface on initial stability depends upon _____.
A. the amount of liquid in the compartment
B. the dimensions of the liquid surface and the vessel's displacement
C. only the length of the compartment
D. the vertical position of the liquid in the vessel

57. 2556 Ref: Stability, Free surface C
The effects of free surface on a vessel's initial stability do NOT depend upon the _____.
A. volume of displacement of the vessel
B. dimensions of the surface of the liquid
C. amount of liquid in slack tanks
D. specific gravity of the liquid in the tank

58. 2557 Ref: Stability, Free surface B
The effects of free surface on initial stability depend upon the dimensions of the surface of the free liquids and the _____.
A. volume of liquid in the tank
B. volume of displacement of the vessel
C. location of the tank in the vessel
D. height of the center of gravity of the vessel

59. 2605 Ref: Stability, Free surface B
The free surface correction depends upon the dimensions of the surface of the free liquid and the _____.
A. volume of liquid in the tank
B. displacement of the vessel
C. location of the tank in the vessel
D. height of the center of gravity of the vessel

60. 2608 Ref: Stability, Free surface C
The free surface effects of a partially full liquid tank decrease with increased _____.
A. density of the liquid
B. placement of the tank above the keel
C. displacement volume of the vessel
D. size of the surface area in the tank

61. 2609 Ref: Stability, Free surface A
The free surface effects of a partially full tank in a vessel increase with the _____.
A. surface area of the fluid in the tank
B. displacement volume of the vessel
C. draft of the vessel
D. height of the tank above the keel

62. 2627 Ref: Stability, Free surface C
The greatest effect on stability occurs from loose liquids flowing _____.
A. from side to side in the tanks of the vessel
B. from fore to aft in the tanks of a vessel
C. in and out of a vessel that is holed in a wing tank
D. in and out of a vessel that is holed in a peak tank

63. 2807 Ref: Stability, Free surface D
The most important figure in calculating the free surface constant of a tank carrying liquids is _____.
A. depth
B. length
C. displacement
D. breadth

64. 3329 Ref: Stability, Free surface B
To calculate the free surface correction, it is necessary to divide the free-surface moments by the _____.
A. total weight of liquid loads
B. total displacement
C. lightweight
D. deadweight

65. 3523 Ref: Stability, Free surface C
What does NOT affect the value of the free surface correction?
A. Width of the tank
B. Length of the tank
C. Registered tonnage
D. Specific gravity of the liquid in the tank

66. 3725 Ref: Stability, Free surface C
What is the principal danger from the liquid in a half full tank onboard a vessel?
A. Corrosion from the shifting liquid
B. Rupturing of bulkheads from the shifting liquid
C. Loss of stability from free surface effect
D. Holing of the tank bottom from the weight of the shifting liquid

67. 3948 Ref: Stability, Free surface D
When displacement increases, the free surface moments of slack tanks _____.
A. increase
B. decrease
C. are inversely proportional
D. remain unchanged

68. 4226 Ref: Stability, Free surface A
Which factor has the greatest effect on the value of the free surface correction?
A. The width of the tank
B. The length of the tank
C. The draft of the vessel
D. The specific gravity of the liquid in the tank

69. 4392 Ref: Stability, Free surface D
Which statement about free surface is TRUE?
A. A partially filled space with 40% surface permeability will have greater free surface effect than one with 60% surface permeability.
B. Pocketing increases the loss of GM due to free surface effect.
C. Cargo with a specific gravity of 1.05 has less free surface effect than a cargo with a specific gravity of 0.98.
D. Pocketing occurs at small angles of inclination when a tank is 98% full.

70. 4406 Ref: Stability, Free surface B
Which statement about the free surface correction is TRUE?
A. It is added to the uncorrected GM to arrive at the corrected available GM.
B. It is obtained by dividing the free surface moments by 12 times the volume of displacement.
C. It is obtained by dividing the total free surface by the total vertical moments.
D. It is subtracted from the total longitudinal moments before dividing by displacement to find LCG.

71. 4407 Ref: Stability, Free surface D
Which statement about the free surface correction is TRUE?
A. It is added to GM at light drafts and subtracted at deep drafts.
B. It is increased if the slack tank is not on the centerline.
C. It is decreased if the slack tank is below the KG of the vessel.
D. The correction decreases as the draft increases due to loading dry cargo.

72. 4408 Ref: Stability, Free surface D
Which statement about the free surface correction is TRUE?
A. It is added to GM at light drafts and subtracted at deep drafts.
B. It is increased if the slack tank is not on the centerline.
C. It is decreased if the slack tank is below the KG of the vessel.
D. The correction decreases as the draft increases

73. 4409 Ref: Stability, Free surface A
Which statement about the free surface effect is TRUE?
A. It has the same affect on initial stability whether the tank is 75% full or 25% full.
B. The free surface effect usually increases at angles of heel above 25°.
C. The effect increases if the tank is off the centerline.
D. The effect can be reduced by shifting weights vertically.

74. 4410 Ref: Stability, Free surface B
Which statement about the free surface effect is TRUE?
A. It increases in direct proportion to the length of the tank times the breadth squared.
B. It decreases at increased angles of heel due to pocketing when a tank is 90% full.
C. It decreases in direct proportion to increasing specific gravity of the liquid in the tank.
D. In practice, the correction is considered to be a virtual reduction of KG.

75. 4756 Ref: Stability, Free surface C
You are fighting a fire in a watertight compartment using hoses and river water. Stability may be reduced because of _____.
A. progressive downflooding
B. reduction of water in the storage tanks
C. increase in free surface which reduces the metacentric height
D. reduction of KG to the minimum allowable

76. 390 Ref: Stability, Free surface, Calc B
A tank 36 ft. by 36 ft. by 6 ft. is filled with water to a depth of 5 ft. If a bulkhead is placed in the center of the tank running fore-and-aft along the 36-foot axis, how will the value of the moment of inertia of the free surface be affected?
A. The moment of inertia would remain unchanged.
B. The moment of inertia would be 1/4 its original value.
C. The moment of inertia would be 1/2 the original value.
D. None of the above

77. 3947 Ref: Stability, Free surface, Formula B
When displacement increases, the free surface corrections for slack tanks _____.
A. increase
B. decrease
C. are directly proportional
D. remain unchanged

78. 1999 Ref: Stability, Free surface, GM A
Reducing the liquid free surfaces in a vessel reduces the _____.
A. roll period
B. metacentric height
C. waterplane area
D. vessel's draft

79. 2105 Ref: Stability, Free surface, KG D
Subtracting FSCT from KGT yields _____.
A. BL
B. GMT
C. FSCT
D. KG

80. 2333 Ref: Stability, Free surface, KG C
The correction to KG for longitudinal free surface effects for a vessel can be found by dividing the vessel's displacement into the _____.
A. transverse free surface correction for the vessel
B. sum of the vertical moments of the vessel
C. sum of the longitudinal free surface moments of the vessel
D. longitudinal centerline of the vessel

81. 2334 Ref: Stability, Free surface, KG C
The correction to KG for transverse free surface effects may be found by dividing the vessel's displacement into the _____.
A. transverse free surface correction for the vessel
B. sum of the vertical moments of the vessel
C. sum of the transverse free surface moments of the vessel
D. transverse baseline of the vessel

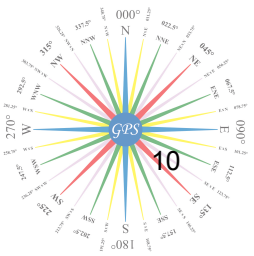
82. 395 Ref: Stability, Free surface, Slack B
A tank which is NOT completely full or empty is called _____.
A. pressed
B. slack
C. inertial
D. elemental

83. 273 Ref: Stability, GM, Large A
A quick and rapid motion of a vessel in a seaway is an indication of a(n) _____.
A. large GM
B. high center of gravity
C. excessive free surface
D. small GZ

84. 456 Ref: Stability, GM, Large A
A vessel with a large GM will _____.
A. have more resistance to listing in case of damage
B. have less tendency to have synchronous rolling
C. be less likely to have cargo shift
D. ride more comfortably

85. 457 Ref: Stability, GM, Large C
A vessel with a large GM will _____.
A. have a small amplitude of roll in heavy weather
B. tend to ship water on deck in heavy weather
C. be subject to severe racking stresses
D. be less likely to have cargo shift

86. 1333 Ref: Stability, GM, Large C
If the metacentric height is large, a vessel will _____.
A. be tender
B. have a slow and easy motion
C. be stiff
D. have a tendency to yaw



87. 4292 Ref: Stability, GM, Large D
Which is TRUE of a "stiff" vessel?
A. It has a small GM.
B. It pitches heavily.
C. It has an unusually high center of gravity.
D. Its period of roll is short.

88. 4481 Ref: Stability, GM, Large A
Which statement is TRUE of a stiff vessel?
A. She will have a large metacentric height.
B. Her period of roll will be large due to her large metacentric height.
C. She will have an unusually high center of gravity.
D. She will pitch heavily.

89. 4511 Ref: Stability, GM, Large A
Which technique could be used to give a more comfortable roll to a stiff vessel?
A. Concentrate weights on upper decks
B. Add weight near the centerline of the lower hold
C. Move weights lower in the ship
D. Ballast the peak tanks

90. 369 Ref: Stability, GM, Small A
A slow and easy motion of a vessel in a seaway is an indication of a _____.
A. small GM
B. low center of gravity
C. stiff vessel
D. large GZ

91. 458 Ref: Stability, GM, Small B
A vessel with a small GM will _____.
A. have a large amplitude of roll
B. provide a comfortable ride for the crew and passengers
C. have drier decks in heavy weather
D. be likely to have cargo shift in heavy weather

92. 459 Ref: Stability, GM, Small D
A vessel with a small GM will _____.
A. be more subject to synchronous rolling
B. have a short rolling period
C. provide an uncomfortable ride for personnel
D. have a smaller amplitude of roll in heavy weather

93. 460 Ref: Stability, GM, Small D
A vessel would be referred to as "tender" when the weight of the cargo is _____.
A. evenly distributed vertically and the double bottoms are full
B. concentrated low and the double bottoms are empty
C. concentrated low and the double bottoms are full
D. concentrated high and the double bottoms are empty

94. 1335 Ref: Stability, GM, Small A
If the metacentric height is small, a vessel will _____.
A. be tender
B. have a quick and rapid motion
C. be stiff
D. have large angles of roll

95. 1500 Ref: Stability, GM, Small C
In order to minimize the effects of a tender vessel, when carrying a cargo of lumber, you should _____.
A. maximize your deck load
B. distribute lumber so that those stowing most compactly per unit of weight are in the upper holds
C. place the heaviest woods in the lower holds
D. keep the vessel's frame spaces free from lumber

96. 3461 Ref: Stability, GM, Small B
Vessels "A" and "B" are identical; however, "A" is more tender than "B". This means that "A" relative to "B" has a _____.
A. lower KG
B. smaller GM
C. larger roll angle
D. larger GZ

97. 5177 Ref: Stability, GM, Small D
Your vessel rolls slowly and sluggishly. This indicates that the vessel _____.
A. has off-center weights
B. is taking on water
C. has a greater draft forward than aft
D. has poor stability

98. 492 Ref: Stability, Heel B
A wind has caused a difference between drafts starboard and port. This difference is _____.
A. list
B. heel
C. trim
D. flotation

99. 2536 Ref: Stability, Heel A
The difference between the starboard and port drafts caused by shifting a weight transversely is _____.
A. list
B. heel
C. trim
D. flotation

100. 2537 Ref: Stability, Heel B
The difference between the starboard and port drafts due to wind or seas is called _____.
A. list
B. heel
C. trim
D. flotation

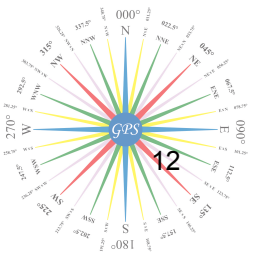
101. 4012 Ref: Stability, Heel B
When making a turn (course change) on most merchant ships, the vessel will heel outwards if _____.
A. the vessel has very little draft
B. G is above the center of lateral resistance
C. G is below the center of lateral resistance
D. the vessel is deeply laden

102. 2604 Ref: Stability, Hogging, Calc A
The forward draft of your ship is 27'-11" and the after draft is 29'-03". The draft amidships is 28'-05". Your vessel is _____.
A. hogged
B. sagged
C. listed
D. trimmed by the head

103. 3900 Ref: Stability, Hogging, Tension B
When a vessel is stationary and in a hogging condition, the main deck is under _____.
A. compression stress
B. tension stress
C. shear stress
D. racking stress

104. 3901 Ref: Stability, Hogging, Tension D
When a vessel is stationary and in a hogging condition, the main deck is under _____.
A. compression stress
B. racking stress
C. shear stress
D. tension stress

105. 3902 Ref: Stability, Hogging, Tension B
When a vessel is stationary and in a hogging condition, the main deck is under which type of stress?
A. compression
B. tension
C. shear
D. racking



106. 5127 Ref: Stability, Hogging, Tension C
Your vessel has a midships engine room and the cargo is concentrated in the end holds. The vessel is _____.
A. sagging with tensile stress on main deck
B. sagging with compressive stress on main deck
C. hogging with tensile stress on main deck
D. hogging with compressive stress on main deck

107. 2827 Ref: Stability, Hogging/Sagging, Sag B
The normal tendency for a loaded tanker is to _____.
A. hog
B. sag
C. have a permanent list
D. be very tender

108. 359 Ref: Stability, Hogging/Sagging, Sag, Calc C
A ship's forward draft is 22'-04" and its after draft is 23'-00". The draft amidships is 23'-04". This indicates a concentration of weight _____.
A. at the bow
B. in the lower holds
C. amidships
D. at the ends

109. 360 Ref: Stability, Hogging/Sagging, Sag, Calc C
A ship's forward draft is 22'-04" and its after draft is 24'-00". The draft amidships is 23'-04". This indicates a concentration of weight _____.
A. at the bow
B. in the lower holds
C. amidships
D. at the ends

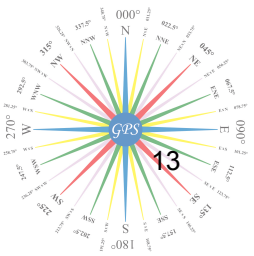
110. 1291 Ref: Stability, Hogging/Sagging, Sag, Compression A
If a vessel is sagging, what kind of stress is placed on the sheer strake?
A. Compression
B. Tension
C. Thrust
D. Racking

111. 1292 Ref: Stability, Hogging/Sagging, Sag, Sheer A
If a vessel is sagging, which kind of stress is placed on the sheer strake?
A. Compression
B. Racking
C. Tension
D. Thrust

112. 2906 Ref: Stability, Icing D
The principal danger from ice collecting on a vessel is the _____.
A. decrease in capabilities of radar
B. decrease in displacement
C. adverse effect on trim
D. loss of stability

113. 4316 Ref: Stability, Icing, CG B
Which of the following describes why topside icing, which is usually off- center, decreases vessel stability?
A. increases displacement
B. it increases the height of the center of gravity
C. it increases draft
D. reduces the pocketing of free surface

114. 3378 Ref: Stability, Icing, Free surface C
Topside icing that blocks freeing ports and scuppers _____.
A. is usually below the center of gravity and has little effect on stability
B. will cause water on deck to pocket and increase stability
C. may decrease stability by increasing free surface effect due to water on deck
D. increases the effective freeboard and increases the wind-heel affect



115. 3377 Ref: Stability, Icing, KG D
Topside icing decreases vessel stability because it increases _____.
A. displacement
B. free surface
C. draft
D. KG

116. 931 Ref: Stability, Inclining experiment D
During a stability test on a small passenger vessel _____.
A. the vessel must be moored snugly
B. each tank must be partially full to show it does not leak
C. all dunnage, tools, and extraneous items are secured
D. water under vessel must be deep enough to prevent grounding

117. 2919 Ref: Stability, Inclining experiment B
The purpose of the inclining experiment is to _____.
A. determine the location of the metacenter
B. determine the lightweight center of gravity location
C. verify the hydrostatic data
D. verify data in the vessel's operating manual

118. 4294 Ref: Stability, Inclining experiment A
Which item do you NOT have to provide for the Coast Guard representative at the time of a stability test?
A. A stability letter.
B. Tank sounding tables and draft mark locations.
C. Capacity plans showing the vertical and longitudinal centers of gravity of stowage spaces and tanks.
D. General arrangement plans of decks; holds and inner bottoms.

119. 1 Ref: Stability, Inclining experiment, 0
One of the main purposes of the inclining experiment on a vessel is to determine the _____.
A. location of the center of gravity of the light ship
B. position of the center of buoyancy
C. position of the metacenter
D. maximum load line

120. 1598 Ref: Stability, Initial D
Initial stability of a vessel may be improved by _____.
A. removing loose water
B. adding weight low in the vessel
C. closing crossover valves between partly filled double bottom tanks
D. All of the above

121. 1599 Ref: Stability, Initial A
Initial stability refers to stability _____.
A. at small angles of inclination
B. when loaded with minimum deck load
C. when at transit draft
D. when GZ is zero

122. 2623 Ref: Stability, KB D
The geometric center of the underwater volume of a floating vessel is the center of _____.
A. hydrodynamic forces
B. flotation
C. gravity
D. buoyancy

123. 3309 Ref: Stability, KB D
The water in which a vessel floats provides vertical upward support. The point through which this support is assumed to act is known as the center of _____.
A. effort
B. flotation
C. gravity
D. buoyancy

124. 1408 Ref: Stability, Letter, Posting D
If your passenger vessel has been issued a stability letter, it must be _____.
A. filed in the ship's office
B. posted in a passenger area
C. posted adjacent to the Certificate of Inspection
D. posted in the pilothouse

125. 418 Ref: Stability, List D
A vessel continually lists to one side and has a normal rolling period. Which statement is TRUE?
A. The vessel has negative GM.
B. The center of gravity is on the centerline.
C. The list can be corrected by reducing KM.
D. The vessel has asymmetrical weight distribution.

126. 439 Ref: Stability, List A
A vessel is "listed" when it is _____.
A. inclined due to an off-center weight
B. inclined due to the wind
C. down by the head
D. down by the stern

127. 440 Ref: Stability, List C
A vessel is "listed" when it is _____.
A. down by the head
B. down by the stern
C. inclined due to off-center weight
D. inclined due to wind

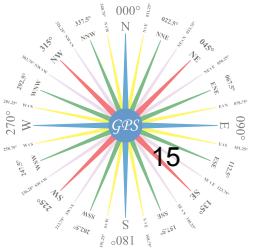
128. 756 Ref: Stability, List A
Assuming an even transverse distribution of weight in a vessel, which condition could cause a list?
A. Empty double-bottoms and lower holds, and a heavy deck cargo
B. Flooding the forepeak to correct the vessel's trim
C. Having KG smaller than KM
D. Having a small positive righting arm

129. 794 Ref: Stability, List C
Before counterflooding to correct a list, you must be sure the list is due to _____.
A. negative GM
B. flooding
C. off-center weight
D. reserve buoyancy

130. 1121 Ref: Stability, List A
Forces within a vessel have caused a difference between the starboard and port drafts. This difference is called _____.
A. list
B. heel
C. trim
D. flotation

131. 1294 Ref: Stability, List A
If a vessel takes a sudden, severe list or trim from an unknown cause, you should FIRST _____.
A. determine the cause before taking countermeasures
B. assume the shift is due to off-center loading
C. counterflood
D. assume the cause is environmental forces

132. 1321 Ref: Stability, List D
If the cause of severe list or trim is off-center ballast, counterflooding into empty tanks will _____.
A. increase the righting moment
B. increase the righting arm
C. increase list or trim
D. decrease list or trim



133. 5131 Ref: Stability, List D
Your vessel has just finished bunkering and has a small list due to improper distribution of the fuel oil. This list will cause _____.
A. a decrease in reserve buoyancy
B. a decrease in the maximum draft
C. the vessel to flop to port and starboard
D. None of the above

134. 5134 Ref: Stability, List A
Your vessel has taken a slight list from off-center loading of material on deck. The _____.
A. list should be easily removed
B. mean draft is affected
C. vessel may flop
D. vessel is trimmed

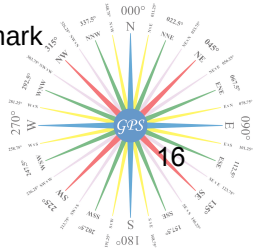
135. 2775 Ref: Stability, Load lines D
The maximum mean draft to which a vessel may be safely loaded is called _____.
A. mean draft
B. calculated draft
C. deep draft
D. load line draft

136. 4746 Ref: Stability, Load lines C
You are bound from port A governed by the summer load line mark to port B also governed by the summer mark. The great circle track will take you into a zone governed by the winter mark. Which statement is TRUE?
A. You cannot load beyond the summer mark at port A and must be at the winter mark upon arrival at port B.
B. You can only load to the winter mark plus any fresh water allowance and burnout to sea at port A.
C. You must be at the winter mark when you enter the winter zone and cannot exceed the summer mark upon departing port A.
D. You can load so that upon arrival at the pier at port B your freeboard is equal to the summer mark less any fresh water allowance.

137. 4780 Ref: Stability, Load lines D
You are loading at port A, governed by the summer load line mark, for a voyage to port B, governed by the winter mark. The fresh water allowance is 10", and the hydrometer reads 1.020. Which statement is TRUE?
A. You may not load beyond the winter mark except for 2 inches brackish water allowance.
B. You may not load beyond the summer mark and must be at the winter mark upon arrival at port B.
C. You may not load beyond the summer mark plus 8 inches brackish water allowance.
D. You may load to the summer mark plus 2 inches if you will be at the winter mark when entering the winter zone.

138. 4784 Ref: Stability, Load lines B
You are loading in a port governed by the tropical load line mark for a voyage to a port governed by the winter mark. The fresh water allowance is 5 inches, and the hydrometer reads 1.005. Which statement is TRUE?
A. You may load to the tropical mark plus 1 inch brackish water allowance.
B. You must load so that each zone mark will not be submerged upon entering the zone.
C. Your draft must not exceed the winter mark plus the fresh water allowance upon arrival off the discharge port.
D. You may only load to the winter mark plus a brackish water allowance of 4 inches.

139. 4801 Ref: Stability, Load lines B
You are loading in the winter in Albany, N.Y., for a voyage to a port governed by the tropical load line mark. Which of the following statements is TRUE? (Hydrometer reading in Albany is 1.000)
A. You may not exceed the winter load line mark when you finish loading except for the burnout to sea.
B. The freshwater allowance and burnout to sea may be subtracted from the required freeboard in Albany.
C. You may calculate the burnout necessary to reach the tropical zone and load extra cargo to compensate.
D. You may load to the winter mark less the fresh water allowance if you will be at the tropical mark upon arrival in the tropical zone.



140. 615 Ref: Stability, Longitudinal D
After transferring a weight forward on a vessel, the draft at the center of flotation will _____.
A. change, depending on the location of the LCG
B. increase
C. decrease
D. remain constant

141. 5148 Ref: Stability, Longitudinal B
Your vessel is drifting with the wind broad on the port beam. The marconi sail is set and flapping free. As you sheet in the maximum drive is attained when the sail _____.
A. is at right angles to the true wind
B. first takes the shape of an airfoil
C. is filled with a slight flap at the leech
D. is 45° from the apparent wind

142. 5149 Ref: Stability, Longitudinal C
Your vessel is equipped with a fixed CO2 system and a fire main system. In the event of an electrical fire in the engine room what is the correct procedure for fighting the fire?
A. Use the CO2 system and evacuate the engine room.
B. Use the fire main system and evacuate the engine room.
C. Evacuate the engine room and use the CO2 system.
D. Evacuate the engine room and use the fire main system.

143. 2194 Ref: Stability, Longitudinal, Center of floatation B
The center of flotation of a vessel is _____.
A. the center of volume of the immersed portion of the vessel
B. the center of gravity of the water plane
C. that point at which all the vertical downward forces of weight are considered to be concentrated
D. that point at which all the vertical upward forces of buoyancy are considered to be concentrated

144. 2195 Ref: Stability, Longitudinal, Center of floatation D
The center of flotation of a vessel is the geometric center of the _____.
A. underwater volume
B. above water volume
C. amidships section
D. waterplane area

145. 2196 Ref: Stability, Longitudinal, Center of floatation A
The center of flotation of a vessel is the point in the waterplane _____.
A. about which the vessel lists and trims
B. which coincides with the center of buoyancy
C. which, in the absence of external forces, is always vertically aligned with the center of gravity
D. which is shown in the hydrostatic tables as VCB

146. 4169 Ref: Stability, Longitudinal, LBP A
Which abbreviation refers to the horizontal distance between perpendiculars taken at the forward-most and the after-most points on a small passenger vessel's waterline at her deepest operating draft?
A. LBP
B. LOA
C. LWL
D. LLL

147. 2126 Ref: Stability, Longitudinal, LCG, LCB D
The "trimming arm" of a vessel is the horizontal distance between the _____.
A. LCB and LCF
B. LCF and LCG
C. LHA and LCG
D. LCB and LCG

148. 3283 Ref: Stability, Longitudinal, LCG lcb B
The two points that act together to trim a ship are the _____.
A. LCF and LCB
B. LCG and LCB
C. metacenter and LCG
D. VCG and LCG

149. 3905 Ref: Stability, Longitudinal, LCG lcb A
When a vessel's LCG is aft of her LCB, the vessel will _____.
A. trim by the stern
B. trim by the head
C. be on an even keel
D. be tender

150. 3269 Ref: Stability, Longitudinal, Pitching D
The time required to incline from bow down to stern down and return to bow down again is called _____.
A. rolling period
B. amplitude moment
C. inclining moment
D. pitching period

151. 2121 Ref: Stability, Longitudinal, Tipping center A
That center around which a vessel trims is called the _____.
A. tipping center
B. center of buoyancy
C. center of gravity
D. turning center

152. 2531 Ref: Stability, Longitudinal, Trim C
The difference between the forward and aft drafts is _____.
A. list
B. heel
C. trim
D. flotation

153. 2995 Ref: Stability, Longitudinal, Trim C
The ship's tanks most effective for trimming are the _____.
A. deeps
B. domestics
C. peaks
D. settlers

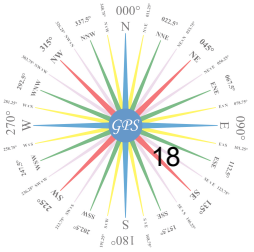
154. 3256 Ref: Stability, Longitudinal, Trim D
The tendency of a vessel to return to its original trim after being inclined by an external force is _____.
A. equilibrium
B. buoyancy
C. transverse stability
D. longitudinal stability

155. 3326 Ref: Stability, Longitudinal, Trim D
Those ship's tanks that are particularly important for trimming the ship are the _____.
A. domestics
B. settlers
C. deeps
D. peaks

156. 4176 Ref: Stability, Longitudinal, Trim C
Which action will affect the trim of a vessel?
A. Moving high weights lower
B. Adding weight at the tipping center
C. Moving a weight forward
D. All of the above

157. 242 Ref: Stability, Metacenter, Equilibrium B
A neutral equilibrium position for a vessel means that the metacenter is _____.
A. lower than the keel
B. at the same height as the center of gravity
C. exactly at midships
D. at the center of the waterplane area

158. 724 Ref: Stability, Metacenter, Equilibrium A
An unstable upright equilibrium position on a vessel means that the metacenter is _____.
A. lower than the center of gravity
B. at the same height as the center of gravity
C. higher than the baseline
D. on the longitudinal centerline



159. 1102 Ref: Stability, Metacenter, Equilibrium C
For small angles of inclination, if the KG were equal to the KM, then the vessel would have _____.
A. positive stability
B. negative stability
C. neutral stability
D. maximum stability

160. 2089 Ref: Stability, Metacenter, Equilibrium C
Stable equilibrium for a vessel means that the metacenter is _____.
A. at a lower level than the baseline
B. on the longitudinal centerline
C. higher than the center of gravity
D. at amidships

161. 2858 Ref: Stability, Metacenter, Equilibrium A
The original equilibrium position is always unstable when _____.
A. metacentric height is negative
B. KM is higher than KG
C. KG exceeds maximum allowable limits
D. free surfaces are excessive

162. 3413 Ref: Stability, Metacenter, Equilibrium A
Unstable equilibrium exists at small angles of inclination when _____.
A. G is above M
B. G is off the centerline
C. B is off the centerline
D. B is above G

163. 4057 Ref: Stability, Metacenter, Equilibrium D
When stability of a vessel is neutral, the value of GM _____.
A. only depends on the height of the center of gravity
B. only depends on the height of the metacenter
C. is greater when G is low
D. is zero

164. 4079 Ref: Stability, Metacenter, Equilibrium A
When the height of the metacenter is greater than the height of the center of gravity a vessel has which type of stability?
A. Stable
B. Neutral
C. Unstable
D. Negative

165. 4080 Ref: Stability, Metacenter, Equilibrium A
When the height of the metacenter is greater than the height of the center of gravity, a vessel is in _____.
A. stable equilibrium
B. neutral equilibrium
C. unstable equilibrium
D. negative equilibrium

166. 4081 Ref: Stability, Metacenter, Equilibrium D
When the height of the metacenter is greater than the height of the center of gravity, the upright equilibrium position is stable and stability is _____.
A. unstable
B. neutral
C. negative
D. positive

167. 4082 Ref: Stability, Metacenter, Equilibrium C
When the height of the metacenter is less than the height of the center of gravity of a vessel, the upright equilibrium position is _____.
A. stable
B. neutral
C. unstable
D. positive

168. 4083 Ref: Stability, Metacenter, Equilibrium C
When the height of the metacenter is less than the height of the center of gravity, a vessel has which type of stability?
A. Stable
B. Neutral
C. Negative
D. Positive

169. 4084 Ref: Stability, Metacenter, Equilibrium C
When the height of the metacenter is less than the height of the center of gravity, a vessel has which type of stability?
A. Stable
B. Neutral
C. Unstable
D. Positive

170. 4085 Ref: Stability, Metacenter, Equilibrium B
When the height of the metacenter is the same as the height of the center of gravity of a vessel, the upright equilibrium position is _____.
A. stable
B. neutral
C. unstable
D. negative

171. 4087 Ref: Stability, Metacenter, Equilibrium B
When the height of the metacenter is the same as the height of the center of gravity, the upright equilibrium position is _____.
A. stable
B. neutral
C. unstable
D. negative

172. 235 Ref: Stability, Moments B
A moment is obtained by multiplying a force by its _____.
A. couple
B. lever arm
C. moment of inertia
D. point of application

173. 2735 Ref: Stability, Moments B
The magnitude of a moment is the product of the force and _____.
A. time
B. lever arm
C. displacement
D. angle of inclination

174. 2954 Ref: Stability, Moments A
The result of multiplying a weight by a distance is a _____.
A. moment
B. force
C. couple
D. center of gravity location

175. 505 Ref: Stability, Moments, CG B
Aboard a vessel, dividing the sum of the transverse moments by the total weight yields the vessel's _____.
A. vertical moments
B. transverse position of the center of gravity
C. inclining moments
D. righting moments

176. 506 Ref: Stability, Moments, CG A
Aboard a vessel, dividing the sum of the vertical moments by the total weight yields the vessel's _____.
A. height of the center of gravity
B. vertical moments
C. righting moments
D. inclining moments

177. 1340 Ref: Stability, Moments, CG D
If the result of loading a vessel is an increase in the height of the center of gravity, there will always be an increase in the _____.
A. metacentric height
B. righting arm
C. righting moment
D. vertical moments

178. 472 Ref: Stability, Moments, KG B
A vessel's KG is determined by _____.
A. dividing the total longitudinal moment summation by displacement
B. dividing the total vertical moment summation by displacement
C. multiplying the MT1 by the longitudinal moments
D. subtracting LCF from LCB

179. 2687 Ref: Stability, Moments, KG C
The LCG of a vessel may be found by dividing displacement into the _____.
A. longitudinal center of gravity of the vessel
B. sum of the vertical moments of the vessel
C. sum of the longitudinal moments of the vessel
D. longitudinal baseline of the vessel

180. 3459 Ref: Stability, Moments, KG A
Vertical moment is obtained by multiplying a vessel's weight and its _____.
A. VCG or KG
B. LCB
C. LCG
D. TCG

181. 473 Ref: Stability, Moments, LCG A
A vessel's LCG is determined by _____.
A. dividing the total longitudinal moment summations by displacement
B. dividing the total vertical moment summations by displacement
C. multiplying the MT1 by the longitudinal moments
D. subtracting LCF from LCB

182. 504 Ref: Stability, Moments, LCG D
Aboard a vessel, dividing the sum of the longitudinal moments by the total weight yields the vessel's _____.
A. inclining moments
B. righting moments
C. vertical moments
D. longitudinal position of the center of gravity

183. 1656 Ref: Stability, Moments, LCG C
Longitudinal moment is obtained by multiplying a vessel's weight and its _____.
A. VCG or KG
B. LCB
C. LCG
D. TCG

184. 2681 Ref: Stability, Moments, LCG B
The KG of a vessel is found by dividing the displacement into the _____.
A. height of the center of gravity of the vessel
B. sum of the vertical moments of the vessel
C. sum of the free surface moments of the vessel
D. sum of the longitudinal moments of the vessel

185. 5160 Ref: Stability, Moments, Loll D
Your vessel is listing because of a negative GM. To lower G below M, you should _____.
A. deballast
B. transfer weight to the high side
C. ballast on the high side
D. add weight symmetrically below G

186. 507 Ref: Stability, Moments, Transverse B
Aboard a vessel, multiplying a load's weight by the distance of the load's center of gravity from the centerline results in the load's _____.
A. TCG
B. transverse moment
C. righting moment
D. transverse free surface moment

187. 3254 Ref: Stability, Moments, Transverse C
The TCG of a vessel may be found by dividing the displacement of the vessel into the _____.
A. transverse center of gravity of the vessel
B. sum of the vertical moments of the vessel
C. sum of the transverse moments of the vessel
D. transverse baseline of the vessel

188. 1782 Ref: Stability, Moments, Vertical B
On a vessel, multiplying a load's weight by the distance of the load's center of gravity above the baseline results in a(n) _____.
A. transverse moment
B. vertical moment
C. righting moment
D. inclining moment

189. 3581 Ref: Stability, Motion C
What is NOT a motion of the vessel?
A. Pitch
B. Roll
C. Trim
D. Yaw

190. 4722 Ref: Stability, Motion, Yawing, C
Yawing can be described as _____.
A. jumping on the tow line as the rig pitches
B. jumping on the tow line as the rig slams into waves
C. veering from side to side on the end of the tow line
D. corkscrew motion due to wave action

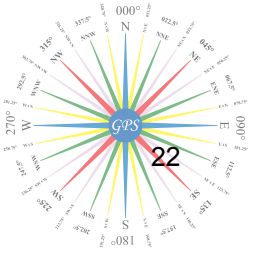
191. 2203 Ref: Stability, MT1 A
The change in trim of a vessel may be found by _____.
A. dividing the trim moments by MT1
B. subtracting the LCF from the LCB
C. looking at the Hydrostatic Properties Table for the draft of the vessel
D. dividing longitudinal moments by the displacement

192. 239 Ref: Stability, Negative, GM A
A negative metacentric height _____.
A. should always be immediately corrected
B. will always cause a vessel to capsize
C. always results from off-center weights
D. All of the above are correct

193. 240 Ref: Stability, Negative, GM B
A negative metacentric height _____.
A. will always cause a vessel to capsize
B. should always be immediately corrected
C. always results from off-center weights
D. All of the above are correct

194. 241 Ref: Stability, Negative, GM C
A negative metacentric height _____.
A. will always cause a vessel to capsize
B. always results from off-center weights
C. should always be immediately corrected
D. All of the above are correct

195. 725 Ref: Stability, Negative, GM C
An upright vessel has negative GM. GM becomes positive at the angle of loll because the _____.
A. free surface effects are reduced due to pocketing
B. KG is reduced as the vessel seeks the angle of loll
C. effective beam is increased causing BM to increase
D. underwater volume of the hull is increased



196. 1319 Ref: Stability, Negative, GM D
If the cause of a sudden severe list is negative initial stability, counterflooding into empty tanks may ____.
A. increase the righting moment
B. cause an increase in the righting arm
C. bring the vessel to an upright equilibrium position
D. cause the vessel to flop to a greater angle

197. 1413 Ref: Stability, Negative, GM B
If your vessel has a list to port due to negative GM and off-center weight, the first corrective measure you should take is to _____.
A. move port-side main-deck cargo to the starboard side
B. fill the starboard double-bottom
C. pump water from the port double-bottom to the starboard double-bottom
D. pump water from the port double-bottom over the side

198. 1419 Ref: Stability, Negative, GM A
If your vessel will list with equal readiness to either side, the list is most likely caused by _____.
A. negative GM
B. off-center weight
C. pocketing of free surface
D. excessive freeboard

199. 940 Ref: Stability, Negative, Loll C
During cargo operations, your vessel develops a list due to the center of gravity rising above the transverse metacenter. To correct the list, you should _____.
A. shift weight to the high side
B. shift weight to the centerline
C. add weight in the lower holds or double bottoms
D. remove weight from the lower holds or double bottoms

200. 424 Ref: Stability, Off center A
A vessel has a strong wind on the port beam. This has the same effect on stability as _____.
A. weight that is off-center to starboard
B. increasing the draft
C. reducing the freeboard
D. increasing the trim

201. 2773 Ref: Stability, Permissible length D
The maximum length allowed between main, transverse bulkheads on a vessel is referred to as the ____.
A. floodable length
B. factor of subdivision
C. compartment standard
D. permissible length

202. 2042 Ref: Stability, Preload A
Sea water temporarily pumped into tanks to simulate the increased vertical loading of environmental forces is termed _____.
A. preload
B. liquid variable load
C. fixed load
D. basic load

203. 2028 Ref: Stability, Reserve buoyancy B
Reserve buoyancy is the _____.
A. unoccupied space below the waterline
B. volume of intact space above the waterline
C. excess of the buoyant force over the gravity force
D. difference in the buoyant force in salt and fresh waters

204. 3978 Ref: Stability, Reserve buoyancy A
When flooding occurs in a damaged vessel, reserve buoyancy _____.
A. decreases
B. remains the same
C. increases
D. shifts to the low side

205. 412 Ref: Stability, Righting arm B
A vertical shift of weight to a position above the vessel's center of gravity will _____.
A. increase reserve buoyancy
B. decrease the righting moments
C. decrease KG
D. increase KM

206. 768 Ref: Stability, Righting arm C
At all angles of inclination, the true measure of a vessel's stability is the _____.
A. metacentric height
B. displacement
C. righting moment
D. inclining moment

207. 1087 Ref: Stability, Righting arm A
For a vessel inclined by the wind, multiplying the buoyant force by the horizontal distance between the lines of action of the buoyant and gravity forces gives the _____.
A. righting moment
B. vertical moment
C. longitudinal moment
D. transverse moment

208. 1343 Ref: Stability, Righting arm A
If the vertical center of gravity (VCG) of a ship rises, the righting arm (GZ) for the various angles of inclination will _____.
A. decrease
B. increase
C. remain unchanged
D. be changed by the amount of GG' x cosine of the angle

209. 2151 Ref: Stability, Righting arm A
The angle of maximum righting arm corresponds approximately to the angle of _____.
A. deck edge immersion
B. the load line
C. downflooding
D. loll

210. 2650 Ref: Stability, Righting arm A
The horizontal distance between the vertical lines of action of gravity and the buoyant forces is called the _____.
A. righting arm
B. metacentric height
C. metacentric radius
D. height of the center of buoyancy

211. 3894 Ref: Stability, Righting arm B
When a vessel has positive stability, the distance between the line of force through B and the line of force through G is called the _____.
A. metacentric height
B. righting arm
C. righting moment
D. metacentric radius

212. 3907 Ref: Stability, Righting arm B
When a wind force causes a vessel to heel to a static angle, the _____.
A. centers of buoyancy and gravity are in the same vertical line
B. righting moment equals the wind-heeling moment
C. center of buoyancy remains the same
D. deck-edge immersion occurs

213. 1076 Ref: Stability, Righting arm, Gz A
For a given displacement, the righting arm has its maximum value when _____.
A. KG is minimum
B. angle of inclination is a maximum
C. small-angle stability applies
D. KM is a minimum

214. 2956 Ref: Stability, Righting arm, Gz C
The righting moment can be determined by multiplying the displacement by the _____.
A. vertical center of gravity (KG)
B. longitudinal center of gravity (LCG)
C. righting arm (GZ)
D. center of gravity (CG)

215. 3292 Ref: Stability, Righting arm, Gz D
The value of the maximum righting arm depends on the position of the center of buoyancy and the _____.
A. longitudinal center of gravity
B. transverse center of gravity
C. downflooding angle
D. vertical location of the center of gravity

216. 4028 Ref: Stability, Righting arm, Gz C
When positive stability exists, GZ represents the _____.
A. righting moment
B. center of gravity
C. righting arm
D. metacentric height

217. 1320 Ref: Stability, Righting arm, List D
If the cause of a sudden severe list or trim is negative initial stability, counterflooding into empty tanks may _____.
A. increase the righting moment
B. cause an increase in the righting arm
C. bring the unit to an upright equilibrium position
D. cause the unit to flop to a greater angle

218. 1525 Ref: Stability, Righting arm, List B
In the absence of external forces, adding weight on one side of a floating vessel causes the vessel to __.
A. heel until the angle of loll is reached
B. list until the center of buoyancy is aligned vertically with the center of gravity
C. trim to the side opposite TCG until all moments are equal
D. decrease draft at the center of flotation

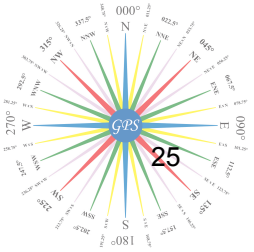
219. 3989 Ref: Stability, Righting arm, List B
When inclined to an angle of list, the value of the righting arm is _____.
A. negative
B. zero
C. positive
D. maximum

220. 444 Ref: Stability, Righting arm, Loll C
A vessel is inclined at an angle of loll. In the absence of external forces, the righting arm (GZ) is _____.
A. positive
B. negative
C. zero
D. vertical

221. 769 Ref: Stability, Righting arm, Loll D
At an angle of loll, the capsizing moment is _____.
A. maximum
B. negative
C. positive
D. zero

222. 770 Ref: Stability, Righting arm, Loll D
At an angle of loll, the righting arm (GZ) is _____.
A. maximum
B. negative
C. positive, but reflexive
D. zero

223. 771 Ref: Stability, Righting arm, Loll D
At an angle of loll, the righting moment is _____.
A. maximum
B. negative
C. positive
D. zero



224. 3293 Ref: Stability, Righting arm, Loll B
The value of the righting arm at an angle of loll is _____.
A. negative
B. zero
C. positive
D. equal to GM

225. 1697 Ref: Stability, Stress D
Of the following, the most important consideration for a tank vessel is _____.
A. GM
B. the vertical center of gravity
C. the longitudinal center of gravity
D. the stress on the hull

226. 3848 Ref: Stability, Suspended weight D
What will NOT decrease the stability of a vessel?
A. Topside icing
B. Running with a following sea
C. Using 35% of the fuel in a full tank
D. Lowering a weight suspended by a boom onto the deck

227. 482 Ref: Stability, Suspended weight, CG B
A virtual rise in the center of gravity may be caused by _____.
A. filling a partially filled tank
B. using an on board crane to lift a freely swinging heavy object
C. emptying a partially filled tank
D. transferring ballast from the forepeak to the after peak

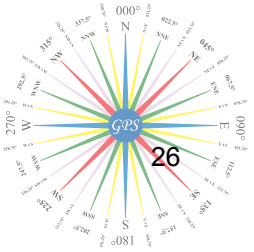
228. 2197 Ref: Stability, Suspended weight, CG A
The center of gravity of a freely swinging load suspended from a pedestal crane acts as if it were located at the _____.
A. counterweight
B. pedestal
C. longitudinal centerline
D. point of suspension

229. 4482 Ref: Stability, Tender B
Which statement is TRUE of a tender vessel?
A. It has a large GM.
B. Its period of roll is long.
C. It has a very low center of gravity.
D. It has a good transverse stability.

230. 1492 Ref: Stability, TPI D
In order to calculate the TPI of a vessel, for any given draft, it is necessary to divide the area of the waterplane by _____.
A. 35
B. 120
C. 240
D. 420

231. 2204 Ref: Stability, TPI D
The change in weight (measured in tons) which causes a draft change of one inch is _____.
A. MT1 inch
B. ML1 inch
C. MH1 inch
D. TPI

232. 3273 Ref: Stability, TPI D
The TPI curve, one of the hydrostatic curves in a vessel's plans, gives the number of tons _____.
A. necessary to change the angle of list 1° at a given draft
B. necessary to change trim 1 inch at a given draft
C. pressure per square inch on the vessel's hull at a given draft
D. necessary to further immerse the vessel 1 inch at a given draft



233. 4177 Ref: Stability, Transverse A
Which action will best increase the transverse stability of a merchant vessel at sea?
A. Ballasting the double bottom tanks
B. Deballasting the deep tanks
C. Positioning a heavy lift cargo on the main deck
D. Raising the cargo booms to the upright position

234. 124 Ref: Stability, Transverse, CG A
A floating vessel will behave as if all of its weight is acting downward through the _____.
A. center of gravity
B. center of buoyancy
C. center of flotation
D. metacenter

235. 2534 Ref: Stability, Transverse, CG D
The difference between the height of the metacenter and the metacentric height is known as _____.
A. righting arm
B. metacentric radius
C. height of the center of buoyancy
D. height of the center of gravity

236. 1075 Ref: Stability, Transverse, GM D
For a floating vessel, the result of subtracting KG from KM is the _____.
A. height of the metacenter
B. height of the righting arm
C. height of the center of buoyancy
D. metacentric height

237. 1149 Ref: Stability, Transverse, GM A
GM cannot be used as an indicator of stability at all angles of inclination because _____.
A. M is not fixed at large angles
B. there is no M at large angles
C. G is not fixed at large angles
D. there is no G at large angles

238. 1513 Ref: Stability, Transverse, GM D
In small angle stability, the metacentric height _____.
A. is found in the hydrostatic tables for a level vessel
B. multiplied by the displacement yields the righting moment
C. is always positive
D. is calculated by subtracting KG from KM

239. 1597 Ref: Stability, Transverse, GM A
Initial stability is indicated by _____.
A. GM
B. KM
C. Deck load
D. Maximum allowed KG

240. 1668 Ref: Stability, Transverse, GM A
Metacentric height is a measure of _____.
A. initial stability only
B. stability through all angles
C. maximum righting arm
D. All of the above

241. 1669 Ref: Stability, Transverse, GM C
Metacentric height is an indication of a vessel's stability _____.
A. for all angles of inclination
B. for large angles of inclination
C. for small angles of inclination
D. in no case

242. 2107 Ref: Stability, Transverse, GM B
Subtracting KG from KM yields _____.
A. BM
B. GM
C. GZ
D. KG

243. 2133 Ref: Stability, Transverse, GM D
The abbreviation GM is used to represent the _____.
A. height of the metacenter
B. righting arm
C. righting moment
D. metacentric height

244. 2532 Ref: Stability, Transverse, GM D
The difference between the height of the metacenter and the height of the center of gravity is _____.
A. KB
B. KG
C. KM
D. GM

245. 2533 Ref: Stability, Transverse, GM A
The difference between the height of the metacenter and the height of the center of gravity is known as the _____.
A. metacentric height
B. height of the righting arm
C. fore and aft perpendicular
D. height of the center of buoyancy

246. 2656 Ref: Stability, Transverse, GM A
The important initial stability parameter, GM, is the _____.
A. metacentric height
B. height of the metacenter above the keel
C. height of the center of buoyancy above the keel
D. height of the center of gravity above the keel

247. 2859 Ref: Stability, Transverse, GM A
The original equilibrium position is stable when _____.
A. metacentric height is positive
B. metacentric radius is positive
C. KG exceeds maximum allowable limits
D. free surfaces are excessive

248. 3298 Ref: Stability, Transverse, GM B
The vertical distance between G and M is used as a measure of _____.
A. stability at all angles of inclination
B. initial stability
C. stability at angles less than the limit of positive stability
D. stability at angles less than the downflooding angle

249. 3756 Ref: Stability, Transverse, GM A
What is the stability term for the distance from the center of gravity (G) to the Metacenter (M), when small-angle stability applies?
A. metacentric height
B. metacentric radius
C. height of the metacenter
D. righting arm

250. 3777 Ref: Stability, Transverse, GM A
What is used as an indicator of initial stability?
A. GM
B. KG
C. KM
D. GZ

251. 3931 Ref: Stability, Transverse, GM A
When cargo is shifted from the lower hold to the main deck the _____.
A. center of gravity will move upwards
B. GM will increase
C. center of buoyancy will move downward
D. All of the above

252. 4261 Ref: Stability, Transverse, GM C
Which formula can be used to calculate metacentric height?
A. KM + GM
B. KM – GM
C. KM – KG
D. KB + BM

253. 4554 Ref: Stability, Transverse, GM B
Which will be a result of removing on-deck containers?
A. KG will increase
B. Metacentric height will increase
C. KB will increase
D. Reserve buoyancy will decrease

254. 3386 Ref: Stability, Transverse, Hydrostatic B
Transverse stability calculations require the use of _____.
A. hog or sag calculations or tables
B. hydrostatic curves
C. general arrangement plans
D. cross-sectional views of the vessel

255. 415 Ref: Stability, Transverse, KB B
A vessel behaves as if all of its weight is acting downward through the center of gravity, and all its support is acting upward through the _____.
A. keel
B. center of buoyancy
C. tipping center
D. amidships section

256. 1293 Ref: Stability, Transverse, KB A
If a vessel lists to port, the center of buoyancy will _____.
A. move to port
B. move to starboard
C. move directly down
D. stay in the same position

257. 1512 Ref: Stability, Transverse, KB C
In small angle stability theory, the metacenter is located at the intersection of the inclined vertical centerline and a vertical line through _____.
A. G
B. F
C. B
D. K

258. 1526 Ref: Stability, Transverse, KB A
In the absence of external forces, the center of buoyancy of an inclined vessel is vertically aligned directly below the _____.
A. center of gravity
B. amidships station
C. center of flotation
D. geometric center of the waterplane area

259. 1527 Ref: Stability, Transverse, KB D
In the absence of external forces, the center of gravity of a floating vessel is located directly in line with the _____.
A. metacenter
B. amidships
C. center of flotation
D. geometric center of the displaced volume

260. 2084 Ref: Stability, Transverse, KB D
Stability is determined by the relationship of the center of gravity and the _____.
A. water depth
B. keel
C. center of flotation
D. center of buoyancy

261. 2085 Ref: Stability, Transverse, KB B
Stability is determined principally by the location of the center of gravity and the _____.
A. aft perpendicular
B. center of buoyancy
C. keel
D. center of flotation

262. 2086 Ref: Stability, Transverse, KB C
Stability is determined principally by the location of the point of application of two forces: the downward-acting gravity force and the _____.
A. upward-acting weight force
B. downward-acting weight force
C. upward-acting buoyant force
D. environmental force

263. 2192 Ref: Stability, Transverse, KB D
The center of buoyancy is located at the _____.
A. geometric center of the waterplane area
B. intersection of the vertical centerline and line of action of the buoyant force
C. center of gravity of the vessel corrected for free surface effects
D. geometric center of the displaced volume

264. 2198 Ref: Stability, Transverse, KB A
The center of the underwater volume of a floating vessel is the _____.
A. center of buoyancy
B. center of flotation
C. uncorrected height of the center of gravity of the vessel
D. center of gravity of the vessel corrected for free surface effects

265. 2622 Ref: Stability, Transverse, KB D
The geometric center of the underwater volume is known as the _____.
A. center of flotation
B. tipping center
C. center of gravity
D. center of buoyancy

266. 3476 Ref: Stability, Transverse, KB B
What abbreviation represents the height of the center of buoyancy?
A. BK
B. KB
C. CB
D. BM

267. 3896 Ref: Stability, Transverse, KB B
When a vessel is inclined at a small angle the center of buoyancy will _____.
A. remain stationary
B. move toward the low side
C. move toward the high side
D. move to the height of the metacenter

268. 3897 Ref: Stability, Transverse, KB C
When a vessel is inclined by an external force, the _____.
A. shape of the vessel's underwater hull remains the same
B. vessel's center of gravity shifts to the center of the vessel's underwater hull
C. vessel's center of buoyancy shifts to the center of the vessel's underwater hull
D. vessel's mean draft increases

269. 4713 Ref: Stability, Transverse, KB B
With no environmental forces, the center of gravity of an inclined vessel is vertically aligned directly above the _____.
A. longitudinal centerline
B. center of buoyancy
C. original vertical centerline
D. center of flotation

270. 4714 Ref: Stability, Transverse, KB D
With no environmental forces, the center of gravity of an inclined vessel is vertically aligned with the _____.
A. longitudinal centerline
B. center of flotation
C. original vertical centerline
D. center of buoyancy

271. 2191 Ref: Stability, Transverse, KB km D
The center of buoyancy and the metacenter are in the line of action of the buoyant force _____.
A. only when there is positive stability
B. only when there is negative stability
C. only when there is neutral stability
D. at all times

272. 904 Ref: Stability, Transverse, KG A
Deballasting a double bottom has what affect on KG?
A. KG is increased.
B. KG is decreased.
C. KG is not affected.
D. KG increases at light drafts and decreases at deep drafts.

273. 1562 Ref: Stability, Transverse, KG B
In the presence of external forces, the center of buoyancy of an inclined vessel is vertically aligned with the _____.
A. center of gravity
B. metacenter
C. center of flotation
D. keel

274. 1614 Ref: Stability, Transverse, KG C
Jettisoning weight from topside _____.
A. returns the vessel to even keel
B. reduces free surface effect
C. lowers the center of gravity
D. raises the center of buoyancy

275. 2087 Ref: Stability, Transverse, KG B
Stability is determined principally by the location of the point of application of two forces: the upward-acting buoyant force and the _____.
A. upward-acting weight force
B. downward-acting weight force
C. downward-acting buoyant force
D. environmental force

276. 2088 Ref: Stability, Transverse, KG C
Stability is determined principally by the location of two points in a vessel: the center of buoyancy and the _____.
A. metacenter
B. geometric center of the waterplane area
C. center of gravity
D. center of flotation

277. 2106 Ref: Stability, Transverse, KG D
Subtracting GM from KM yields _____.
A. BL
B. GM
C. FS
D. KG

278. 2657 Ref: Stability, Transverse, KG D
The important stability parameter, KG, is defined as the _____.
A. metacentric height
B. height of the metacenter above the keel
C. height of the center of buoyancy above the keel
D. height of the center of gravity above the keel

279. 767 Ref: Stability, Transverse, Km A
At all angles of inclination, the metacenter is _____.
A. vertically above the center of buoyancy
B. vertically above the center of gravity
C. at the intersection of the upright vertical centerline and the line of action of the buoyant force
D. at the geometric center of the underwater volume

280. 1514 Ref: Stability, Transverse, Km C
In small-angle stability, when external forces exist, the buoyant force is assumed to act vertically upwards through the center of buoyancy and through the _____.
A. center of gravity
B. center of flotation
C. metacenter
D. metacentric height

281. 2636 Ref: Stability, Transverse, Km A
The height of the metacenter above the keel will vary depending on the _____.
A. draft and beam of the drilling unit
B. displacement and deadweight of the drilling unit
C. buoyancy and trim of the drilling unit
D. tonnage and deadweight of the drilling unit

282. 2889 Ref: Stability, Transverse, Km B
The point to which your vessel's center of gravity (G) may rise and still permit the vessel to have positive stability is called the _____.
A. metacentric point
B. metacenter
C. metacentric radius
D. tipping center

283. 3632 Ref: Stability, Transverse, Km B
What is the definition of transverse metacenter?
A. The distance between the actual center of gravity and the maximum center of gravity that will still allow a positive stability.
B. The point to which G may rise and still permit the vessel to possess positive stability.
C. The sum of the center of buoyancy and the center of gravity.
D. The transverse shift of the center of buoyancy as a vessel rolls.

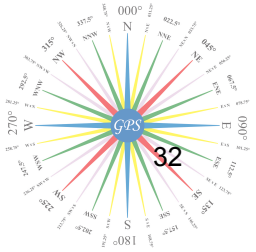
284. 3895 Ref: Stability, Transverse, Km C
When a vessel is floating upright, the distance from the keel to the metacenter is called the _____.
A. metacentric radius
B. height of the baseline
C. height of the metacenter
D. righting arm

285. 3990 Ref: Stability, Transverse, Km C
When initial stability applies, the height of the center of gravity plus the metacentric height equals the ___.
A. free surface moments
B. righting arm
C. height of the metacenter
D. corrected height of the center of gravity

286. 4709 Ref: Stability, Transverse, Km D
With no environmental forces acting on the vessel, the center of gravity of an inclined vessel is vertically aligned with the _____.
A. longitudinal centerline
B. center of flotation
C. original vertical centerline
D. metacenter

287. 4078 Ref: Stability, Transverse, Km KG D
When the height of the metacenter has the same value as the height of the center of gravity, the metacentric height is equal to _____.
A. the height of the metacenter
B. the height of the center of gravity
C. the same as half the height of the etacenter
D. zero

288. 4086 Ref: Stability, Transverse, Km KG D
When the height of the metacenter is the same as the height of the center of gravity, the metacentric height is equal to _____.
A. the height of the metacenter
B. the height of the center of gravity
C. half the height of the metacenter
D. zero



289. 3270 Ref: Stability, Transverse, Rolling D
The time required to incline from port to starboard and back to port again is called _____.
A. initial stability
B. range of stability
C. inclining moment
D. rolling period

290. 2535 Ref: Stability, Trim B
The difference between the initial trim and the trim after loading is known as _____.
A. trim
B. change of trim
C. final trim
D. change of draft

291. 2565 Ref: Stability, Waterplane D
The enclosed area defined as the intersection of the surface of the water and the hull of a vessel is the _____.
A. amidships plane
B. longitudinal reference plane
C. baseline
D. waterplane

292. 3311 Ref: Stability, Waterplane C
The waterplane area is described as the intersection of the surface of the water in which a vessel floats and the _____.
A. baseline
B. vertical reference plane
C. hull
D. horizontal reference plane

293. 4123 Ref: Stability, Weight B
When water is used to fight a fire on board a ship, the effect of the weight of the water must be taken into account. How much sea water will increase the weight displacement by one ton?
A. 64 cubic feet
B. 35 cubic feet
C. 100 gallons
D. 500 liters

294. 4555 Ref: Stability, Weight, Bilges B
Which will improve stability?
A. Closing watertight doors
B. Pumping the bilges
C. Loading cargo on deck
D. Consuming fuel from a full tank

295. 579 Ref: Stability, Weight, CG A
Addition of weight above the center of gravity of a vessel will ALWAYS _____.
A. reduce initial stability
B. increase righting moments
C. increase GM
D. All of the above

296. 4861 Ref: Stability, Weight, CG C
You are preparing for what promises to be a rough ocean passage. Your 120-foot schooner carries a yard on the foremast about 50 feet above the water. The yard weighs about 1000 pounds. If you take the yard down and stow it on deck for the trip, you will _____.
A. decrease the GM
B. give the vessel a gentler roll
C. increase the metacentric height
D. decrease the reserve buoyancy

297. 3847 Ref: Stability, Weight, Shifted A
What will happen when cargo is shifted from the main deck into the lower hold of a vessel?
A. The GM will increase.
B. The metacenter will move upward.
C. The center of buoyancy will move upward.
D. All of the above

298. 5008 Ref: Stability, Weight, Shifted B
You must shift a weight from the upper 'tween deck to the lower hold. This shift will _____.
A. make the vessel more tender
B. make the vessel stiffer
C. increase the rolling period
D. decrease the metacentric height