

Deck Gen - Ship Handling - Anchorage Limit

USCG Deck General Question 3896

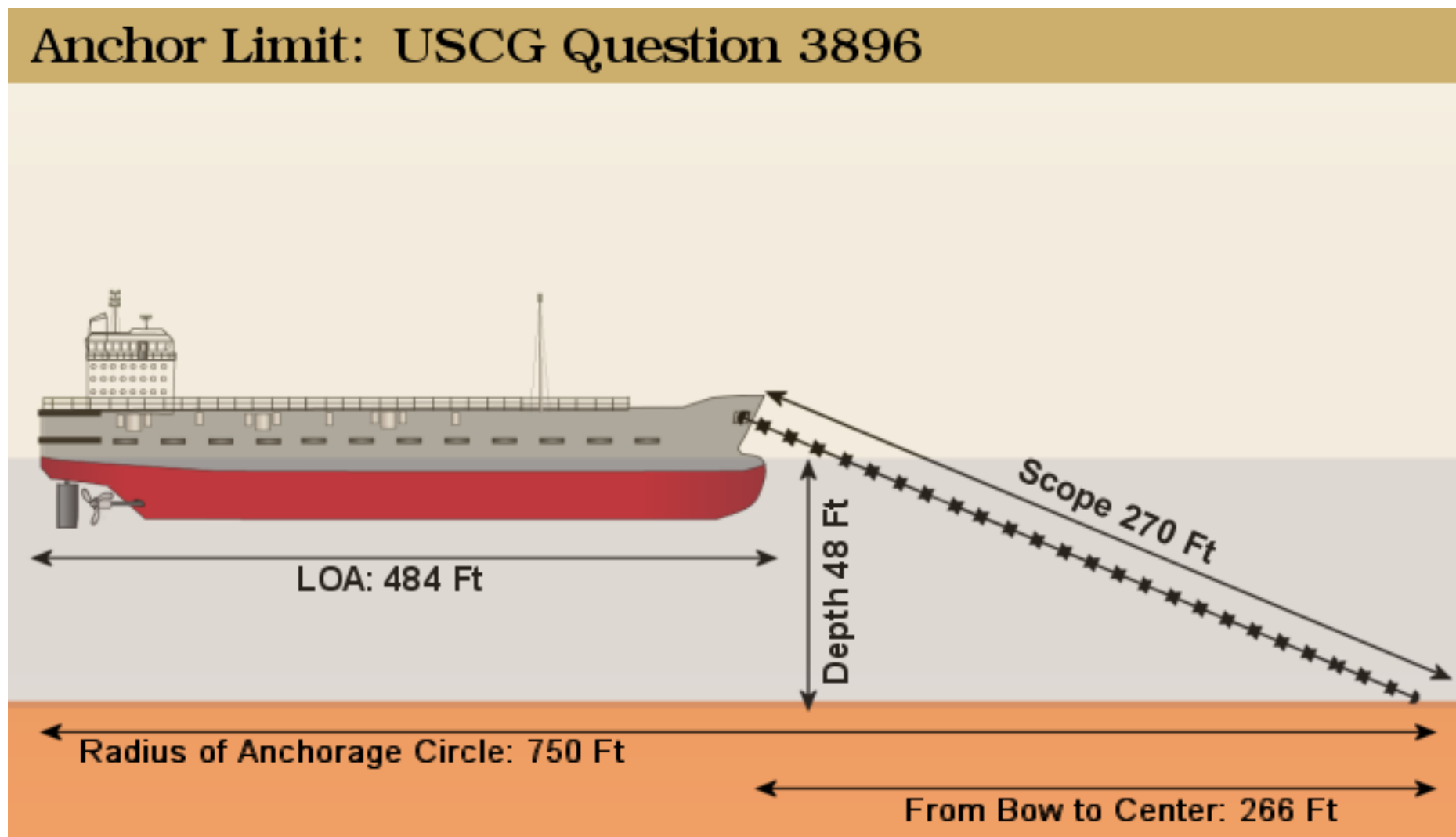
You are arriving in port and are assigned to anchor in anchorage circle B-4. It has a diameter of 500 yards and your vessel's LOA is 484 feet. If you anchor in 8 fathoms at the center of the circle, what is the maximum number of shots of chain you can use and still remain in the circle?

- 1 Read the entire question. Clarify what is being requested.
- 2 Write down all given items. It is helpful to draw a diagram of the ship to visualize the problem.

Ships LOA: 484 Feet (The Ship's Length Overall)

Anchorage: 500 Yards

Depth of Water: 8 Fathoms



USCG Book Deck Gen Question 3896 Diagram to Illustrate the Problem.

- 3 Convert all distances to common units.

LOA: 484 Feet

Anchorage: 500 yds x 3Ft per yard = 1500 Feet (Diameter)

Depth of Water: 8 Fathom x 6 Feet per Fathom = 48 Feet

- 4 Find the Radius of the Anchorage by Dividing the Diameter of Anchorage in half.

1500 Feet divided by 2 = 750 Feet.

The Radius is the maximum distance the stern of the ship can be on any compass heading. Therefore 750 Feet is a base length to start with.

- 5 Subtract the LOA from the Radius of Anchorage circle. This gives the max distance across the ocean bottom from the Anchorage center to the bow of the ship.

750 Feet – 484 Feet = 266 Feet

- 6 Use the Pythagorean Formula to solve the Scope of Chain required.

$$A^2 + B^2 = C^2$$

A = 266 Feet (Distance remaining to work with from anchorage center.)

B = 48 Feet (Depth of Water)

C = Hypotenuse or Scope of Chain required

$$\begin{aligned} A^2 + B^2 &= C^2 \\ (266)^2 + (48)^2 &= C^2 \\ 70,756 + 2,304 &= C^2 \\ 73,060 &= C^2 \\ 270.926 &= C \end{aligned}$$

Pythagorean Theorem

- 7 Convert 270.9 Feet to Shots of Chain.

$\frac{270.9 \text{ Feet}}{90 \text{ Feet}} = 3.00 \text{ Shots}$

Answer: 3.00 Shots