I. State the ratio for each.

1. \( \sin A \)  
2. \( \cot C \)  
3. \( \cos C \)  
4. \( \sec A \)  
5. \( \tan C \)  
6. \( \tan A \)  
7. \( \csc C \)  
8. \( \cos A \)  

II. Solve each triangle \( \triangle ABC \). Express answers to the nearest unit or degree.

9. 

10. 

11. 

III. Find the REQUESTED missing part of right triangle \( \triangle ABC \) (with \( \angle C = 90^\circ \)) using the given information. DRAWING A TRIANGLE WOULD HELP A LOT!

12. \( a = 24; \ c = 25 \); Find \( B \).

13. \( \angle B = 65^\circ; \ a = 75 \); Find \( b \).
IV. WORD PROBLEMS. For each problem, draw a diagram, write an equation, and solve.

16. What is the minimum angle at which an extra point (19 yard) can be kicked in order to clear the goal post, which is 10 feet high?

17. The angle of depression from the top of a tower to a point 140 meters from the base of the tower is 48°. How tall is the tower?

18. A ship is 45 miles east and 30 miles north of port. The captain wants to sail directly to port. What bearing should be taken?

19. A ship is 120 miles south and 45 miles east of a port. The captain wants to go directly to the port. What bearing should be taken? Round your answer to two decimal places.

20. A surveyor wants to find the distance across a swamp. The bearing from A to B is N 32° W. The surveyor walks 50 meters from A, and at the point C the bearing to B is N 68° W. Find the bearing from A to C and then find the distance from A to B.

21. An observer in a lighthouse 350 feet above sea level observes two ships directly offshore. The angles of depression to the ships at point A and at point B are 4° and 6.5°. How far apart are the ships?