

# Pre-Calculus TEST 3.2 Review

**DO ON OWN PAPER.**

1. State the Law of Sines AND when you would use it.
2. State the Law of Cosines (2 forms) AND when you would use it.
3. State three formulas for finding the area of triangle AND when you would use each one.
4. Which law would you use for solving a triangle, given:
  - a. 2 sides and the included angle
  - b. 2 angles and a side
  - c. 2 sides and an opposite angle
  - d. 3 sides only
5. Which formula for the area of a triangle should you use, given:
  - a. 3 sides only
  - b. 2 sides and included angle
  - c. base and altitude

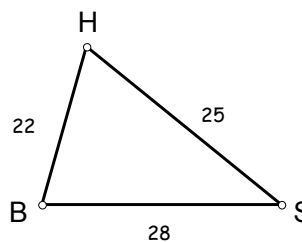
Given the diagram, are the following statements True or False?

6.  $28^2 = 22^2 + 25^2 - 2(22)(25)\sin H$

7.  $\frac{\sin B}{25} = \frac{\sin H}{22}$

8.  $S = \cos^{-1}\left(\frac{22^2 - 25^2 - 28^2}{-2(25)(28)}\right)$

9.  $\sin H = \frac{28\sin S}{22}$



Given triangle ABC, how many solutions are there if...

10.  $A = 30^\circ$ ,  $a = 16$ ,  $b = 11$
11.  $A = 90^\circ$ ,  $a = 8$ ,  $b = 10$
12.  $A = 120^\circ$ ,  $a = 19$ ,  $b = 8$
13.  $A = 70^\circ$ ,  $a = 11$ ,  $b = 17$
14.  $A = 63^\circ$ ,  $a = 15$ ,  $b = 16$
15.  $A = 110^\circ$ ,  $a = 16$ ,  $b = 16$
16.  $A = 50^\circ$ ,  $a = 11$ ,  $b = 11$

Find the indicated part of these oblique triangles.

17.  $A = 51^\circ$ ,  $b = 4$ , and  $c = 5$ , so  $a =$  \_\_\_\_\_.
18.  $E = 67^\circ$ ,  $d = 36.2$ , and  $f = 49.8$ , so  $e =$  \_\_\_\_\_.
19. Find the two angle  $B$ 's for the ambiguous case where  $a = 9.1$ ,  $b = 12$ , and  $A = 35^\circ$ .

Word problems.

20. Both Al and Betty are looking at the top of a building. The angle of elevation from Al's feet to the top is 28 degrees. Betty is 30 feet closer to the building, and the angle of elevation from her feet to the top is 40 degrees. How far is it from Betty's feet to the top of the building? How tall is the building?
21. An adjustable steel brace with 2 arms is used to support a basketball backboard on a garage roof. If the backboard is 46 inches high and the brace arms attached at the top and bottom are 58 and 52 inches, respectively, determine the angle between the two braces.
22. Two ships leave port at the same time. When ship A is 235 miles due south of port, ship B is 300 miles from ship A and 425 miles from port, in the direction shown. What was ship B's bearing when it left port?

Find the area of triangle ABC given the following...

23.  $a = 3$ ,  $b = 6$ , and  $c = 4$
24.  $B = 82^\circ$ ,  $a = 12$ , and  $c = 15$
25.  $A = 51^\circ$ ,  $C = 29^\circ$ , and  $b = 32$

BONUS POSSIBILITY:

Find the length of the altitude from vertex A to side BC of triangle ABC if  $a = 48$ ,  $b = 26$ , and  $c = 50$ .