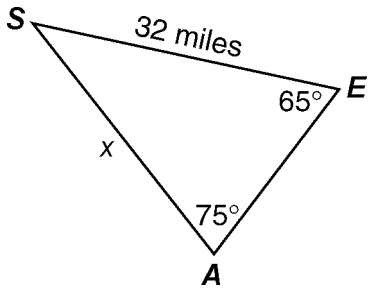
Name: _____

CC Geometry

Law of Sines Homework

1) The accompanying diagram shows the approximate linear distances traveled by a sailboat during a race. The sailboat started at point *S*, traveled to points *E* and *A*, respectively, and ended at point *S*.



Based on the measures shown in the diagram, which equation can be used to find *x*, the distance from point *A* to point *S*?

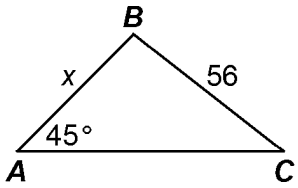
A) $\frac{65}{x}=\frac{32}{75}$

B) $\frac{x}{\sin 65°}=\frac{\sin 75°}{32}$

C) $\frac{x}{65}=\frac{32}{75}$

D) $\frac{\sin 65°}{x}=\frac{\sin 75°}{32}$

2) What additional information is needed in the accompanying diagram to solve for the value of *x* using the Law of Sines?



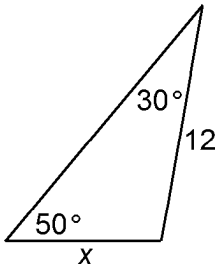
A) measures of both $\angle C$ and side *AC*

B) measure of side *AC*

C) measure of $\angle C$

D) measures of both $\angle B$ and $\angle C$

3) What is the value of the missing side *x* in the non-right triangle below?



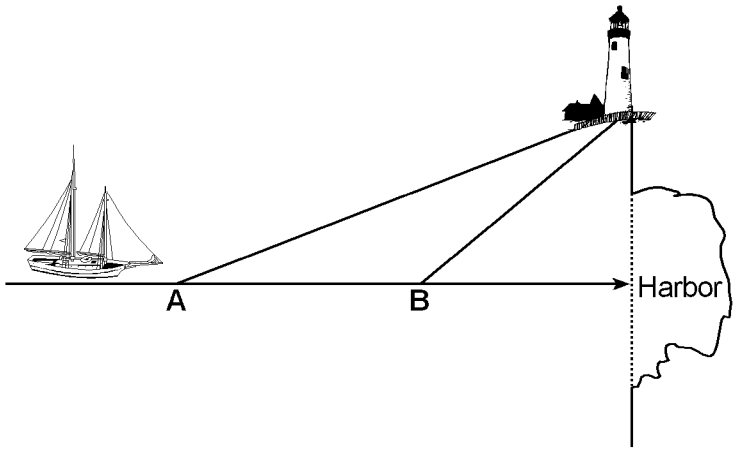
A) 18.39

B) 7.83

C) 31.33

D) 4.60

4) A ship is heading for a harbor. As the ship passes through point *A*, the navigator sights a lighthouse at a 10° angle straight ahead. The ship continues on a straight course toward the harbor for 5 miles to reach point *B*. From point *B*, the angle to the lighthouse is found to be 30°.



How far is point *B* from the entrance to the harbor? [*Round the answer to the nearest tenth of a mile.*] [*Show all work*.]

1) D 2) C 3) B

4) 2.2 miles

WORK SHOWN: Let L = top of light house, let H = Harbor entrance; $\angle ALB = 180 - 10 - (180 - 30) = 20$; $\frac{5}{\sin 20^\circ} = \frac{BL}{\sin 10^\circ}$,

$BL = \frac{5 \sin 10^\circ}{\sin 20^\circ} = 2.5386$; $\cos 30^\circ = \frac{BH}{2.5386}$, $BH = (\cos 30^\circ)(2.5386) = 2.1985 \approx 2.2$