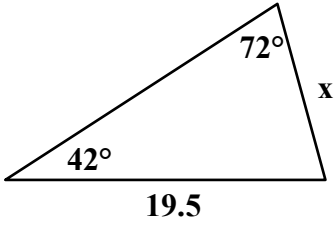
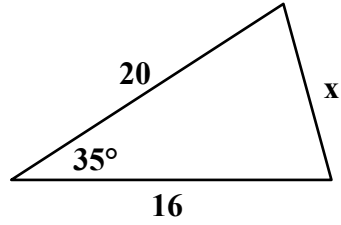


Solve for  $x$ . Express your solutions rounded to 3 significant digits. Show your work neatly organized. The diagrams are not drawn to scale.

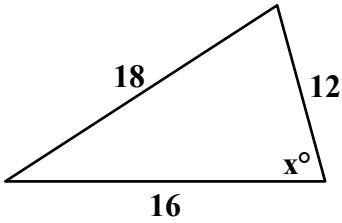
1.  $x =$  \_\_\_\_\_



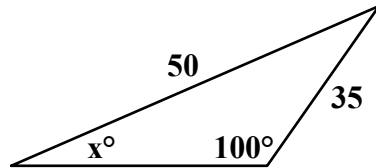
2.  $x =$  \_\_\_\_\_



3.  $x =$  \_\_\_\_\_



4.  $x =$  \_\_\_\_\_



Solve each of the following problems. Express your solutions rounded to 3 significant digits.

5. A freighter leaves Boston Harbor at 10:00 AM sailing on a heading of  $S 75^\circ E$  at a constant speed of 25 mph. At 10:30 AM, an ocean liner leaves Boston Harbor sailing on a heading of  $S 35^\circ E$  at a constant speed of 32 mph. If both ships maintain their course and speed, then how far apart will they be at 2:00 PM?

6. Mary was standing on a beach beside a stump of an old elm tree looking out at a boulder on the shore of a distant island. She took a compass bearing to the boulder and found that it was  $N 40.9^\circ E$  from her current position. She carefully marked off a distance of 200 meters along the shore going due north. She took another compass bearing and found that the boulder was  $N 42.3^\circ E$  from this new position. Calculate the distance from the elm stump to the boulder.