Name_____

Algebra 2/Trig Honors Unit 9 Review

1. In a Δ, one ∠ has a measure of 42°. An adjacent side to the ∠ measures 40 inches while the opposite side to the ∠ is three times as long as the other adjacent side.
   Find the measures of the 2 side lengths.

   (Hint: Use the Law of Cosines and then the Quadratic Formula, $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$)

10.906”
32.719”

2. The perimeter of a square is $\frac{15\sqrt{3}}{8}$ cm. Find the length of the diameter of the square. Express your answer in simplified radical form.

$\frac{15\sqrt{6}}{32} cm$

3. The length of an altitude of an equilateral Δ is $8\sqrt{10}$ inches. Find the perimeter of the Δ. Express your answer in simplified radical form.

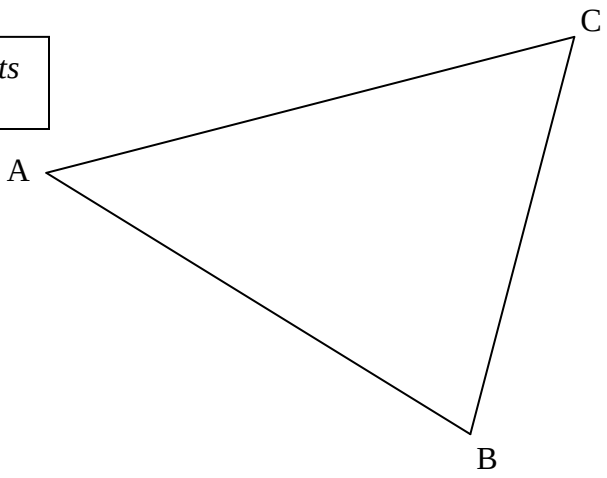
$16\sqrt{30}$ *inches*

4. Find the area of ΔABC if $\angle A = 91.1°$, $a = 27.2$, and $c = 17.1$.
   Round to the nearest tenth and only round the final answer!

   178.036 *square units*

5. The area of the triangle below is 19.6 units^2.
   If $\angle C$ is 68.4° and BC = 9.9 units, find AC. Round to the nearest tenth.

   4.259 *units*



For problems 6-9, solve ΔABC. Round all answers to the nearest tenth.

6. $\angle A = 43.5°$, $b = 7.2$, $a = 10.7$

$B = 27.593^0$
$C = 108.907^0$
$c = 14.706$

7. $\angle C = 28.3°$, $b = 5.71$, $a = 4.21$

$A = 44.896^0$
$B = 106.804^0$
$c = 2.828$

8. $\angle B = 55.3°$, $c = 22.8$, $b = 24.9$

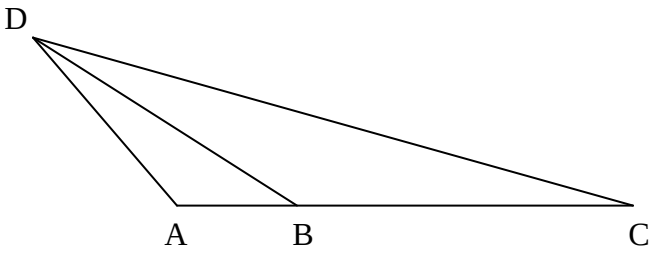
$A = 75.866^0$
$C = 48.834^0$
$a = 29.370$

9. $a = 42.9$, $b = 37.6$, $c = 62.7$

$A = 41.988^0$
$B = 35.897^0$
$C = 102.116^0$

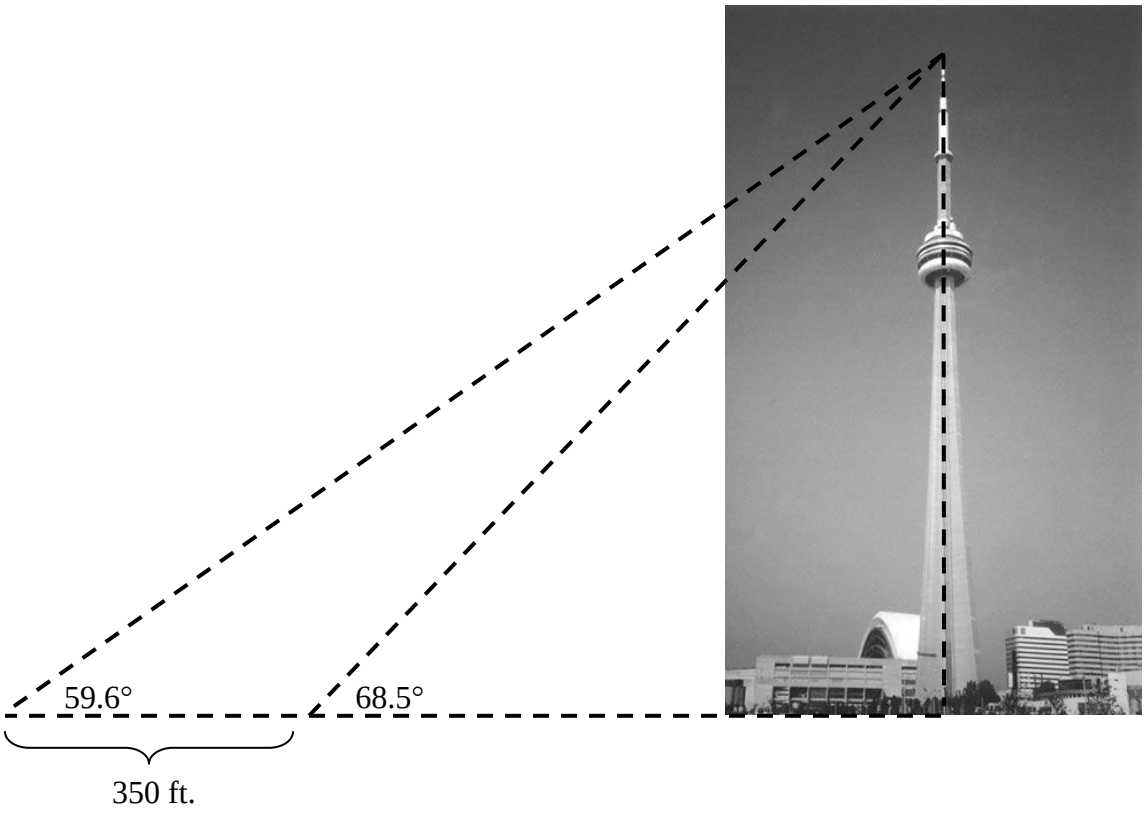
10. Find BC in the following figure if AB = 121.6, DA = 107.7, $\angle ADC = 30.9°$, and $\angle ADB = 19.5°$.
(Hint: This requires using the Law of Sines, twice)

426.033



11. The CN Tower in Toronto Canada is currently the world's tallest building. A surveying team wants to measure the height of the tower. The team moves a certain distance from the base of tower and measures the angle of elevation to be 68.5° Then the team moves back 350 ft. and calculates the angle of elevation to be 59.6° (As shown below)
Find the height of the tower in feet (Round to the nearest tenth).

1218.924 *feet*



12. An airplane is 2560 feet in the air. The angle of depression from the plane to the airport is 22.4°. How far is the ground distance from the airplane from the airport?
Round your answer to the nearest tenth.

6211.026 *feet*

13. Two friends, Adam and Bob, are flying a kite in the park. They both attach a string to the same kite. Adam has 60.4 feet of string and Bob has 71.6 feet of string. After boys have let out all of their string they attach each end to the ground so that the kite is between them. If the angle of depression from the kite to point where Adam's string is attached is 58.3° and the angle of elevation from the ground to the kite from Bob's point on the ground is 45.9°, find the distance between the two ends of the string that are attached to the ground.
Round to the nearest tenth. (assume the strings are drawn tight)

81.566 *feet*