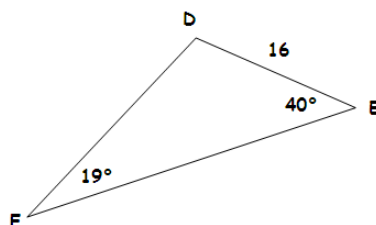


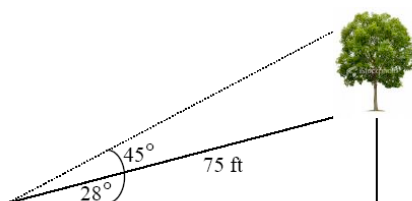
Name: _____

Law of Sines

- 1) A hot-air balloon is held at a constant altitude by two ropes that are anchored to the ground. One rope is 115 ft long while the other is 120 ft long and makes an angle of 65° with the ground. What is the distance between the two points on the ground at which the two ropes are anchored?
- 2) Sami and Hani are standing on opposite sides of a hill trying to estimate the distance between each one and a cat sleeping on the top of the hill. The cat and two boys all lie in the same vertical plane. The angles of elevation from Sami and Hani to the cat are 27° and 38° respectively. The distance between Sami and the cat is 400m. Find the distance between Sami and Hani.
- 3) The distance between Towns A and B is 56 m. The angle formed by the road between Towns A and B and the road between Towns A and C measures 46° . The angle formed by AB and BC measures 115° . Find the distance between Town B and Town C.
- 4) A tree grows on a hillside which slopes down 15.0° from the base of the tree. Find the height of the tree if it casts a 102-ft shadow down the hillside on a day when the angle of elevation of the sun is 62.0° .
- 5) Find the perimeter of $\triangle DEF$.



- 6) A tree stands on a hillside of slope 28° from the horizontal. From a point 75 feet down the hill, the angle of elevation to the top of the tree is 45° . Find the height of the tree.



- 7) Find the areas of each of the following triangles:

- 1) $b = 23, c = 35, A = 50^\circ 32'$

- 2) $a = 456, b = 586, C = 28^\circ$