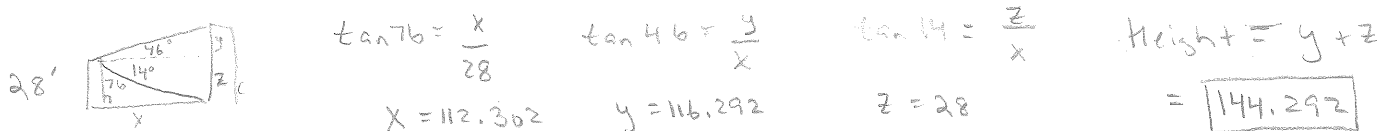


Name Key

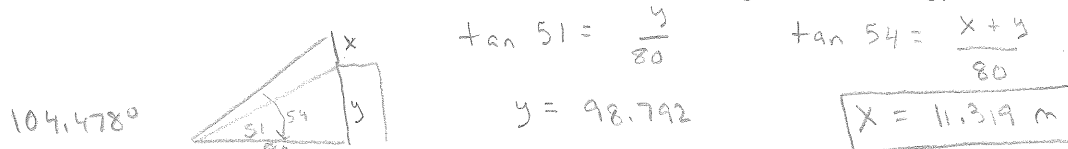
Homework Trig Day 6 Assortment

1-13 Draw a picture for each problem, then write a trig. equation and solve. Round to thousandths. **Do all work on a separate piece of paper.**

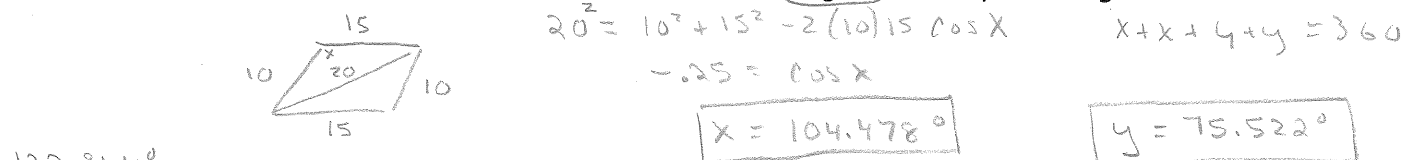
144.292 ft 1) The angle of elevation from the top of a small building to the top of a tall building is 46° . The angle of depression from the top of the small building to the bottom of the tall building is 14° . The height of the small building is 28 ft. Find the height of the tall building.



11.319 m 2) The angle of elevation from a point 80 meters from the base of a building to the top of the building is 51° . The angle of elevation from the same point to the top of a flagpole that's on the top of the building is 54° . Find the length of the flagpole.



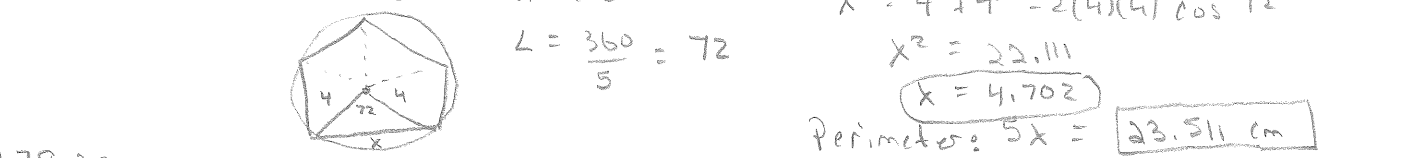
75.522° 3) The lengths of the sides of a parallelogram are 15 cm and 10 cm. The length of the longer diagonal is 20 cm. Find the measure of the angles of the parallelogram.



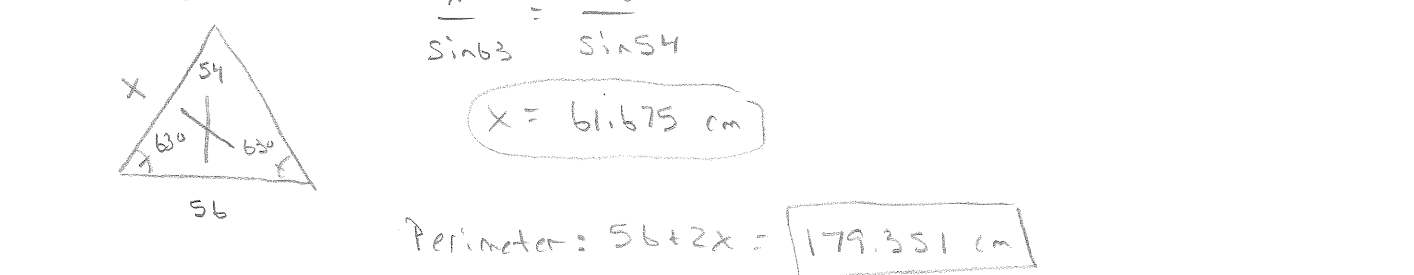
132.844° 4) Nick and Kristyn start their mopeds from the same place at the same time, but travel in different directions. Nick is traveling at 60 mph and Kristyn at 40 mph. Assuming they each travel in a straight path, what's the measure of the angle between their paths if after 2.5 hours they are 230 miles apart?



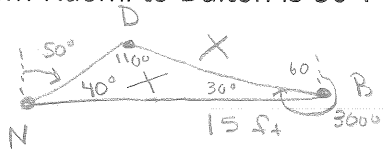
23.511 cm 5) A regular pentagon is inscribed in a circle. The radius of the circle is 4 cm. Find the perimeter of the pentagon.



179.351 cm 6) Find the perimeter of an isosceles triangle if the length of the base is 56 cm, and the base angles are 63° .



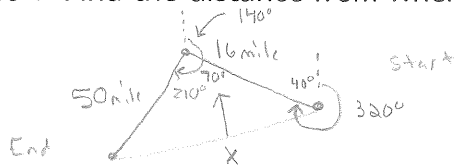
10.261 ft 7) The bearing from Brenda to Dalton is 300° . Naomi is 15 ft west of Brenda. The bearing from Naomi to Dalton is 50° . Find the distance from Brenda to Dalton.



$$\frac{x}{\sin 40^\circ} = \frac{15}{\sin 110^\circ}$$

$$x = 10.261 \text{ ft}$$

47.0 miles 8) Mitchell travels 16 miles on a bearing of 320° . He then turns and travels 50 miles on a bearing of 210° . Find the distance from where Mitchell started to where he is now.



$$x^2 = 50^2 + 16^2 - 2(50)(16) \cos 70^\circ$$

$$x^2 = 2756 - 547.232$$

$$x^2 = 2208.768$$

$$x = 47.0 \text{ miles}$$

9-10 An observer 2 km from a launching pad, observes a vertically ascending missile at an \angle of elevation of 22° . Five seconds later, the \angle of elevation to the missile is 35° .

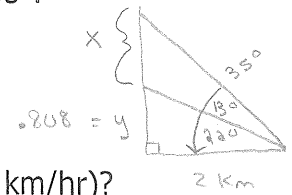
.592 km 9) How far did the missile travel during the 5-second interval?

$$\tan 22^\circ = \frac{y}{2}$$

$$y = .808$$

$$\tan 35^\circ = \frac{.808 + x}{2}$$

$$x = .592 \text{ km}$$



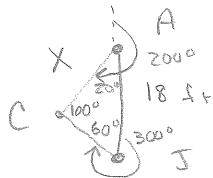
426.24 km/hr 10) What was the average speed during the 5-second interval (in km/hr)?

$$\frac{\text{km}}{\text{hr}}$$

$$.592 \text{ km} \cdot \frac{60 \text{ min}}{1 \text{ hour}} \cdot \frac{60 \text{ sec}}{1 \text{ min}} \cdot \frac{1}{5 \text{ sec}}$$

$$= 426.24 \frac{\text{km}}{\text{hr}}$$

15.829 ft 11) Jose is standing 18 ft due south of Amanda. The bearing from Amanda to Candice is 200° while the bearing from Jose to Candice is 300° . Find the distance from Amanda to Candice.

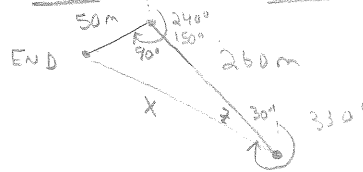


$$\frac{18}{\sin 100^\circ} = \frac{x}{\sin 60^\circ}$$

$$x = 15.829 \text{ ft}$$

319.114° 12) Ariel travels 260 m on a bearing of 330° . She then travels 50 m on a bearing of 240° . Find the bearing and the distance from where Ariel started to where she is now.

$$264.764 \text{ m}$$

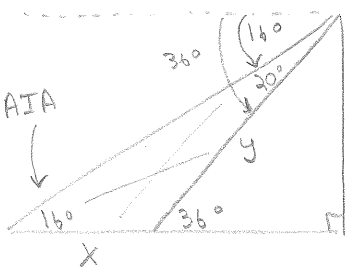


$$\text{Bearing: } 330^\circ - z^\circ = 319.114^\circ$$

$$\tan z = \frac{50}{260} \quad z = 10.886^\circ$$

$$x^2 = 50^2 + 260^2 \quad x = 264.764$$

145.028 ft 13) A ship is moving towards a lighthouse. At 5:00 the angle of depression from the top of the lighthouse to the boat is 16° . Fifteen minutes later, the angle of depression from the top of the lighthouse to the boat is 36° . The height of the lighthouse is 68.7 ft. Find the distance the boat traveled from 5:00 to 5:15.



$$\sin 36^\circ = \frac{68.7}{y}$$

$$y = 116.879$$

$$\frac{x}{\sin 20^\circ} = \frac{y}{\sin 16^\circ}$$

$$x = 145.028 \text{ ft}$$