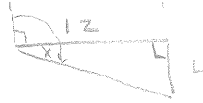


1-7 Draw a picture for each problem, then write a trig. equation and solve. Round to thousandths.  
**Do all work on a separate piece of paper.**

108.435° 1) Jonah rides his motorcycle for 12 miles on a bearing of 90°. He then turns and rides his motorcycle on a bearing of 180° for 4 miles. What is the bearing from where Jonah started to where he is now?



$$\tan x = \frac{4}{12}$$

$$\text{Bear: } 90 + x$$

$$x = 18.435^\circ$$

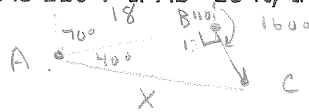
1151.754 mi 2) A plane departs city A and travels on a bearing of 100°. City B is 200 miles directly south of city A. How far has the plane traveled when it is due east of city B?



$$\cos 80^\circ = \frac{200}{X}$$

$$X = 1151.754 \text{ miles}$$

23.497 ft 3) The bearing from A to B is 70°, the bearing from B to C is 160°, and the bearing from A to C is 110°. If AB=18 ft, then AC=?



$$110 + 160 + a = 360$$

$$a = 90$$

$$\cos 40^\circ = \frac{18}{X}$$

$$X = 23.497 \text{ ft}$$

310.005° 4) The distance from A to B is 18 km and the bearing from A to B is 0°. The bearing from B to C is 270°. If AC=28 km, then what's the bearing from A to C?



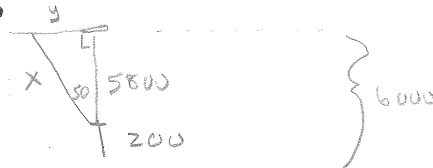
$$\text{Bearing: } 360 - X = 310.005$$

$$\cos X = \frac{18}{28}$$

$$X = 49.995^\circ$$

5-6 The height of a radar tower is 200 m. A plane flying at a height of 6000 m is directly over the radar tower at 1:00 pm. At 1:30 pm, the bearing from the top of the radar tower to the plane is 310° (the plane is still at a height of 6000m).

9023.198 m 5) What's the distance between the plane and the top of the radar tower at 1:30 pm?



$$\cos 50 = \frac{5800}{X}$$

$$X = 9023.198 \text{ m}$$

13,824.342 m/hr 6) What's the speed of the plane between 1:00 and 1:30 pm? (in m/hr)

$$\tan 50 = \frac{y}{5800}$$

$$y = 6912.171 \text{ m} \left( \frac{1}{30 \text{ min}} \right) \left( \frac{60 \text{ min}}{1 \text{ hour}} \right) = 13,824.342 \text{ m/hr}$$

6.402 feet 7) Miguel plans to make a skateboard ramp for his little brother. His brother wants the ramp to rise 4.2 ft off the ground at an angle of 41°. How long does the ramp need to be?



$$\sin 41^\circ = \frac{4.2}{X}$$

$$X = 6.402$$