

Answers to AP Pre-Calc Unit 3 Wkst B

1. Law of Sines
2. Law of Sines
3. Law of Sines and SOH-CAH-TOA
4. SOH-CAH-TOA or 30-60-90 rule and then Law of Sines OR use SOH-CAH-TOA twice
5. Law of Cosines
6. Law of Cosines
7. Law of Cosines
8. Law of Cosines
9. SOH-CAH-TOA
10. Law of Sines and SOH-CAH-TOA
11. Law of Cosines

1. $c = \frac{200 \sin 67}{\sin 87} \approx 184.35$ yds
2. distance from observer B = $\frac{0.5 \sin 63}{\sin 61} \approx 0.51$ miles
distance from observer A = $\frac{0.5 \sin 56}{\sin 61} \approx 0.47$ miles
3. distance from point A = $\frac{\sin 25}{\sin 15} \approx 1.63$ mi; height of UFO ≈ 1.04 mi
4. The flagpole is approximately 75.57 feet long.
5. $d_1 = \sqrt{33.28 - 30.72 \cos 54} \approx 3.90$ and $d_2 = \sqrt{33.28 - 30.72 \cos 126} \approx 7.16$
6. $\theta = \cos^{-1} \left(\frac{3453}{5040} \right) \approx 46.76^\circ$
7. Angle 1: $\cos^{-1} \left(-\frac{17}{49} \right) \approx 110.30^\circ$ and Angle 2: $180 - \cos^{-1} \left(-\frac{17}{49} \right) \approx 69.70^\circ$
8. Compass heading from Orlando to Denver: 301.64°
Compass heading from Niagara Falls to Denver: 261.49°
9. distance = $\frac{240}{\sin 3} \approx 4585.76$ feet
10. approximately 171.50 meters
11. distance = $\sqrt{29088 - 28512 \cos 164} \approx 237.69$ nm (nautical miles)