# Problem Solving Wrksht Answer Key

1) 194 ft

2) 86°

4) 18

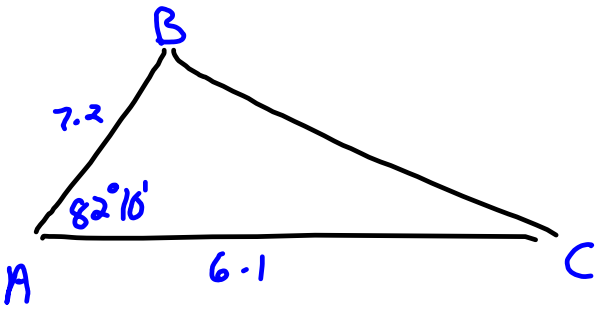
5) 894 ft

## Test Review Answers

1. a = 8.779
   B = 43°30'
   C = 54°20'
2. 16.11cm and 28.95cm
3. 47 ft.
4. 51°19'
5. 87°

Advanced Algebra & Trigonometry Law of cosines/sines review

1. Given b = 6.1, c = 7.2, and A = 82°10′. Solve the triangle. Find sides to the nearest thousandths and angles to the nearest minute.




$a^2 = 7.2^2 + 6.1^2 - 2(7.2)(6.1)\cos 82°10'$

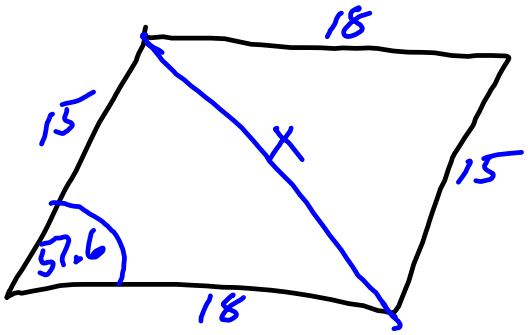
$a = 8.779$

$\frac{\sin B}{6.1} = \frac{\sin 82°10'}{8.779}$

$\angle B = 43°30'$

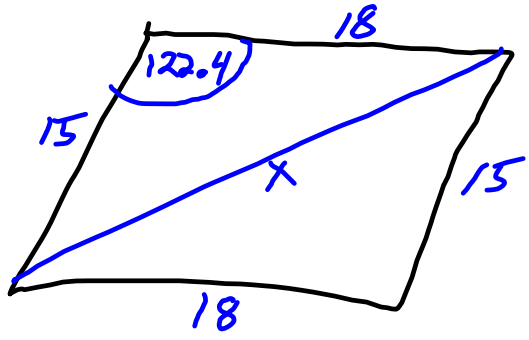
$\angle C = 54°20'$

2. A parallelogram with sides of 15 and 18 cm contains an angle of 57.6°. Find the length of both diagonals to the nearest 100th.




$x^2 = 15^2 + 18^2 - 2(15)(18)\cos 57.6$

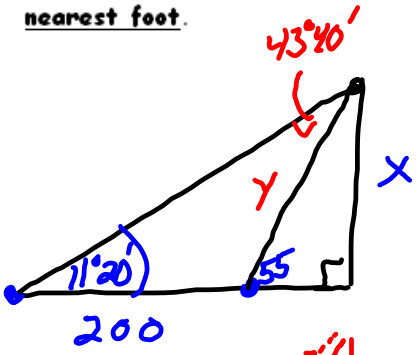
$x = 16.11$




$x^2 = 15^2 + 18^2 - 2(15)(18)\cos 57.6$

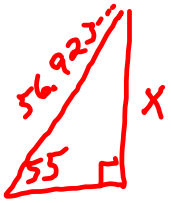
$x = 28.95$

3. Ted and Joe are hiking in the Catskill Mountains. As they hike, they are surprised to see a fire station high above the trees. Ted takes a reading and finds the angle of elevation to the top of the fire station to be $11^0 20'$. They continue hiking for another 200 yards and measure the angle of elevation to be $55^0$. Find the height of the tower to the **nearest foot**.




$\frac{\sin 43°40'}{200} = \frac{\sin 11°20'}{Y}$

$Y = 56.923...$

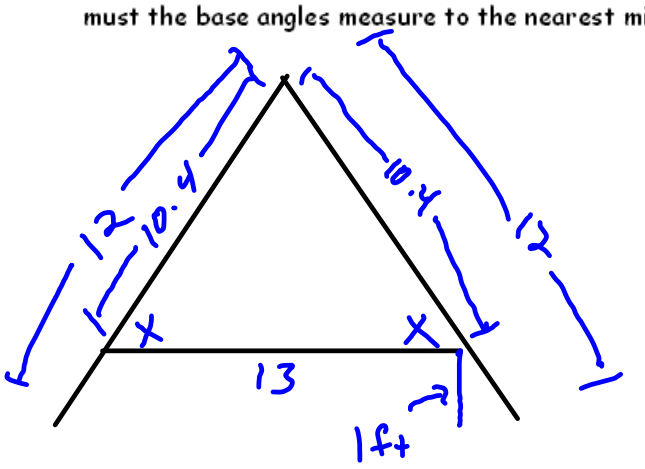



$\sin 55 = \frac{X}{56.923...}$

$X = 46.628$

47 feet

4. Sue and Nicole want to build a triangular lean-to in their backyard to store firewood for their fireplace. They would like to use 12 foot sheets of plywood for the sides and a 13 foot piece of wood for the floor which will be raised 1 foot off the ground. Since the floor is raised, only 10.4 feet of each side will be forming the lean-to. What must the base angles measure to the nearest minute?

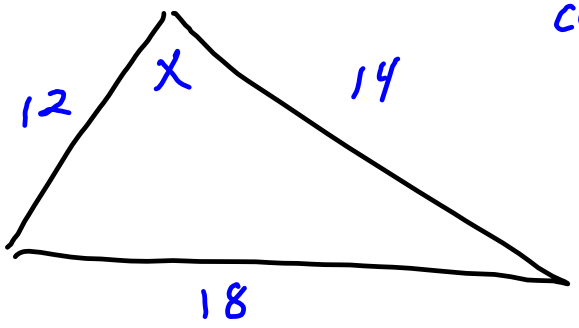



$\cos X = \frac{10.4^2 + 13^2 - 10.4^2}{2(10.4)(13)}$

$\cos X = \frac{169}{270.4}$

$X = 51°19'$

5. The members of the Horticulture Club are designing a wildflower garden. They want to make it in the shape of a triangle whose sides have lengths of 12, 14 and 18 feet. What is the measure of the largest angle in the triangle to the nearest degree?




$\cos X = \frac{12^2 + 14^2 - 18^2}{2(12)(14)}$

$\cos X = \frac{16}{336}$

$X = 87°$

# Laws of Sine/Cosine Test Tomorrow!