Exam Review – Trigonometry

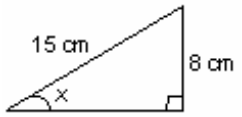
Formulas

Trigonometry Ratios (SOH CAH TOA): $\sin A = \frac{opp}{hyp}$ $\cos A = \frac{adj}{hyp}$ $\tan A = \frac{opp}{adj}$

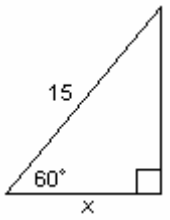
Pythagorean Theorem: $c^2 = a^2 + b^2$ **Sine Law:** $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$

Cosine Law: $a^2 = b^2 + c^2 - 2bc(\cos A)$ **Modified Cosine Law:** $CosA = \frac{b^2 + c^2 - a^2}{2bc}$

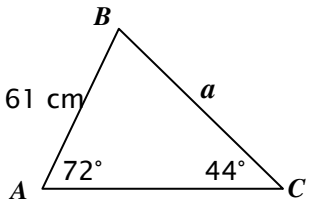
1. Find the measure of angle *x* to the nearest degree.



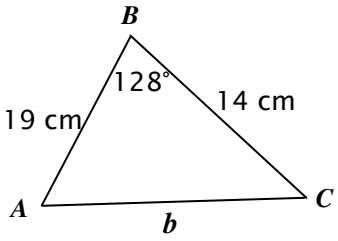
2. Find the value of x.



3. Find the length of side **a**.



4. Solve for the length of side *b*.
   Solve for the measure of angle A.



4. Three straight roads join three towns, A, B, and C. The road between towns A and B is 35 km long. The road between towns A and C makes and angle of 70° with the road between towns A and B. The road between towns A and C is 30 km long. Determine the distance between towns B and C.

5. The carpenter on the Curb Appeal home improvement program wants to change the roof of a garden shed to give it more...curb appeal. He designs the roof shown in the diagram below but then remembers that an apex angle (angle A) greater than 70° requires additional truss structures in the roof for stability. These additional truss structures are expensive and the homeowner will insist on a new design if angle A is greater than 70°.

   Will the carpenter need to redesign the roof? Justify your answer with mathematical reasoning using the results of your calculations.