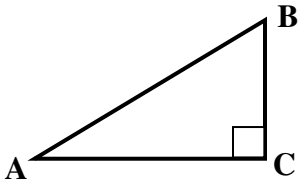
Geometry Note-Taking Guide **Name:**_____

Period:____

Section 7.5 – Solving Triangles using Inverse Trigonometric Ratios

Inverse Trigonometric Ratios

Let $\angle A$ be an acute angle.



Inverse Sine If $\sin A = \frac{BC}{AB}$, then applying the inverse sine function to each side of the equation you get $\sin^{-1}(\sin A) = \sin^{-1}\left(\frac{BC}{AB}\right)$. The equation now provides the angle measure of A, $m\angle A = \sin^{-1}\left(\frac{BC}{AB}\right)$.

Inverse Cosine If $\cos A = \frac{AC}{AB}$, then applying the inverse cosine function to each side of the equation you get $\cos^{-1}(\cos A) = \cos^{-1}\left(\frac{AC}{AB}\right)$. The equation now provides the angle measure of A, $m\angle A = \cos^{-1}\left(\frac{AC}{AB}\right)$.

Inverse Tangent If $\tan A = \frac{BC}{AC}$, then applying the inverse tangent function to each side of the equation you get $\tan^{-1}(\tan A) = \tan^{-1}\left(\frac{BC}{AC}\right)$. The equation now provides the angle measure of A, $m\angle A = \tan^{-1}\left(\frac{BC}{AC}\right)$.

Ex 1:

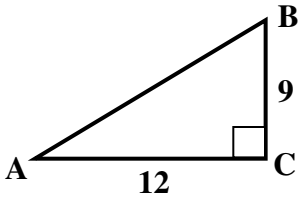
Let $\angle A, \angle B, \text{and} \angle C$ be acute angles. Use a calculator to approximate the measures of $\angle A, \angle B, \text{and} \angle C$ to the nearest tenth of a degree.

a) $\sin B = 0.55$ **b)** $\cos C = 0.87$ **c)** $\tan A = 3.29$

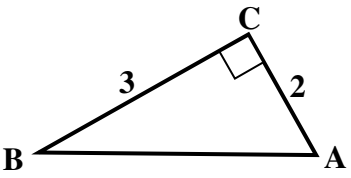
To _____ a right triangle means to find all the unknown _____ lengths and _____ measures.

Ex 2:
Solve the right triangle. Round decimal answers to the nearest tenth.

a)



b)



c)