§4.3: Right Triangle Trigonometric Applications
"I WILL…
…solve right triangles using trigonometry."

I. Right Triangles
    A. Consider a right triangle, one of whose acute angle is θ
    B. The three sides of a triangle are _____, _____, and _____ side of θ
    C. To determine what is the opposite side, look at θ and extend the line to determine the *opposite*
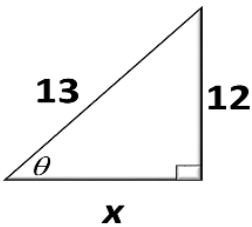
II. Steps in Solving for Triangles
    A. Solve for x, using Pythagorean Theorem
    B. Determine the missing sides by identifying θ
    C. Use Trigonometry Functions to find what's needed

III. Trig Ratios; Saying of "SOHCAHTOA": "_____"

  A. $\sin\theta = $ ————

  B. $\cos\theta = $ ————

  C. $\tan\theta = $ ————

  D. $\csc\theta = $ ————

  E. $\sec\theta = $ ————

  F. $\cot\theta = $ ————

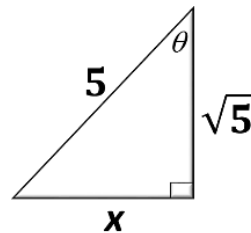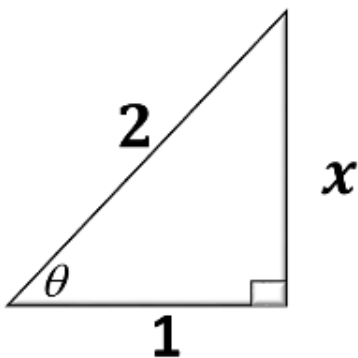| Ex 1: Solve for x and determine all trig functions of θ	Ex 2: Solve for x and determine all trig functions of θ
 $x = $ _____ $\sin\theta = $ _____ $\csc\theta = $ _____ $\cos\theta = $ _____ $\sec\theta = $ _____ $\tan\theta = $ _____ $\cot\theta = $ _____	 $x = $ _____ $\sin\theta = $ _____ $\csc\theta = $ _____ $\cos\theta = $ _____ $\sec\theta = $ _____ $\tan\theta = $ _____ $\cot\theta = $ _____

Your Turn: Solve for x and determine all trig functions of θ

$\sin\theta = $ _____ $\csc\theta = $ _____
$\cos\theta = $ _____ $\sec\theta = $ _____
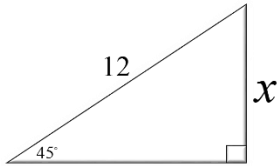$\tan\theta = $ _____ $\cot\theta = $ _____
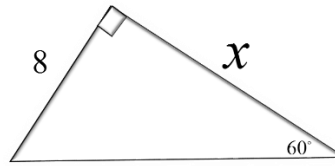$x = $ _____

III. Special Right Triangles

        A. 45°, 45°, 90° = _____, _____, and _____
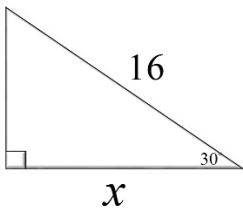
        B. 30°, 60°, 90° = _____, _____, and _____

Ex 3: Find the exact value of x without using a calculator	Ex 4: Find the exact value of x without using a calculator
12 x 45°	8 x 60°
Your Turn: Find the exact value of x without using a calculator. 16 30 x	Ex 5: Given $\cos\theta = \frac{5}{6}$, identify the third side and solve for $\sec\theta$ and $\cot\theta$
Ex 6: Given $\cot\theta = 5$, identify the third side and solve for $\tan\theta$ and $\cot(90° - \theta)$	Your Turn: Given $\csc\theta = 9$, identify the third side and solve for $\cos\theta$ and $\cot\theta$

Assignment: Page 286: 5, 8, 13-19 odd, 41-45 odd, 63-66 all