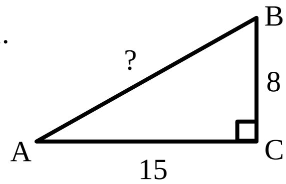
Math 3 Unit 8 Worksheet 1 **Name:______________________________**
Review & Introduction to the Unit Circle **Date:______________________Per:__________**
**** Scientific calculator needed for 5-12 ****

[1-4]: Find the sine, cosine, and tangent ratios for angle A and for angle B in each of the following triangles.
{Hint: Use the Pythagorean theorem to find the missing side in the triangle first.}

1.


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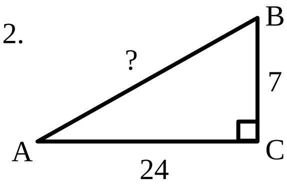

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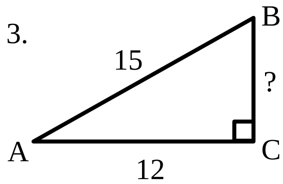

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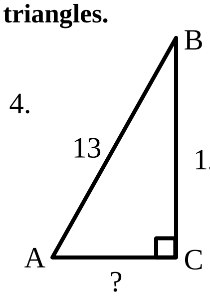
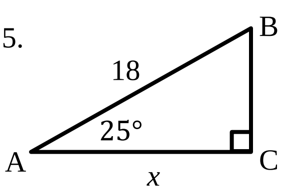


$\sin A =$ ___	$\sin B =$ ___	$\sin A =$ ___	$\sin B =$ ___	$\sin A =$ ___	$\sin B =$ ___	$\sin A =$ ___	$\sin B =$ ___
$\cos A =$ ___	$\cos B =$ ___	$\cos A =$ ___	$\cos B =$ ___	$\cos A =$ ___	$\cos B =$ ___	$\cos A =$ ___	$\cos B =$ ___
$\tan A =$ ___	$\tan B =$ ___	$\tan A =$ ___	$\tan B =$ ___	$\tan A =$ ___	$\tan B =$ ___	$\tan A =$ ___	$\tan B =$ ___

[5-12]: Use right-triangle trigonometry to find the value for *x*, without calculator. Once you have solved for *x* without calculator, use a scientific calculator to find the value of *x* to the nearest thousandth (*i.e.* 3 decimal place accuracy.)

5.


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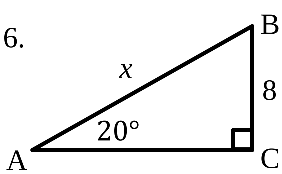

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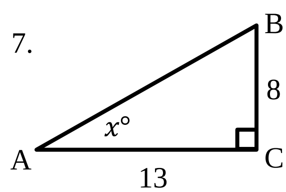

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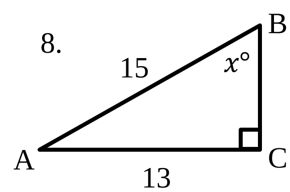

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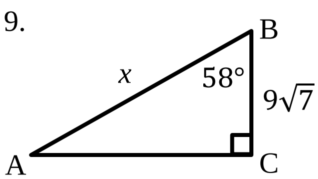

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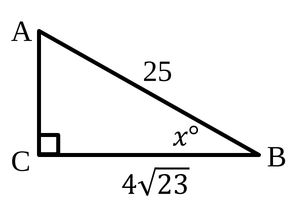

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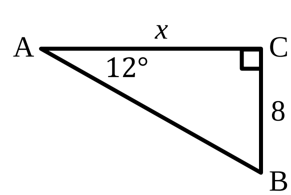

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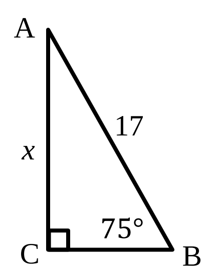
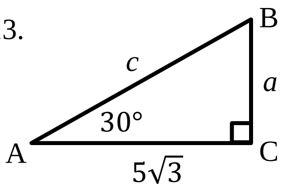


[13-14]: Use only right-triangle trig and the sum of the angles of a triangle to solve the triangle.
{To solve a triangle means to find all angle measures and the length for each side of the triangle.}

13.

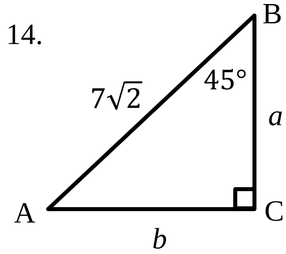


$\angle B =$ _____

$a =$ _____

$c =$ _____

14.

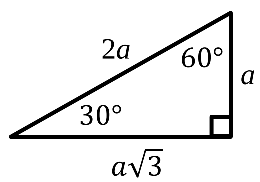


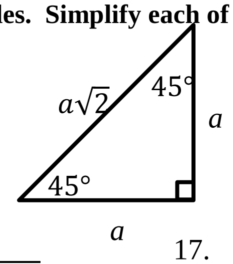
$\angle A =$ _____

$a =$ _____

$b =$ _____

[15-17]: Hopefully you noticed that the previous two problems were special right triangles. The generalized form for the $30°: 60°: 90°$ *right triangle* and the $45°: 45°: 90°$ *right triangle* are shown below. Find the sine, cosine, and tangent ratios for $30°$, $60°$, and $45°$ using these generalized special right triangles. Simplify each of the ratios too.





15. $\sin 30° =$ _____ $=$ _____

$\cos 30° =$ _____ $=$ _____

$\tan 30° =$ _____ $=$ _____

16. $\sin 60° =$ _____ $=$ _____

$\cos 60° =$ _____ $=$ _____

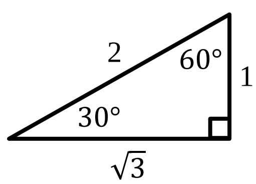
$\tan 60° =$ _____ $=$ _____

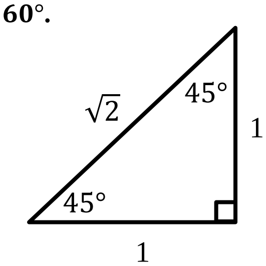
17. $\sin 45° =$ _____ $=$ _____

$\cos 45° =$ _____ $=$ _____

$\tan 45° =$ _____ $=$ _____

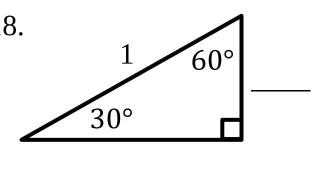
Notice the a's reduce from each of the fractions above; therefore, we can use a simplified form of the generalized special right triangles where $a = 1$ when doing sine, cosine, or tangent of $30°, 45°, or\ 60°$.





[18-19]: It is also advantageous to have the hypotenuse of these special right triangles with a length of 1. Convert each of the special right triangles so that its hypotenuse has length 1 by multiplying by the appropriate scale factor. Label the length for each side of the triangle.

18.



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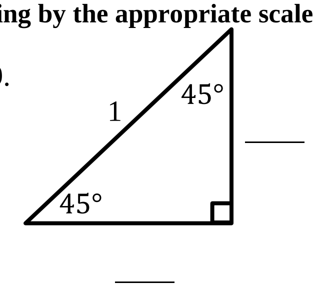
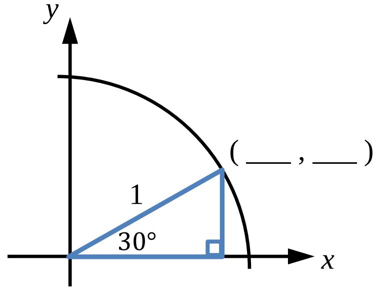
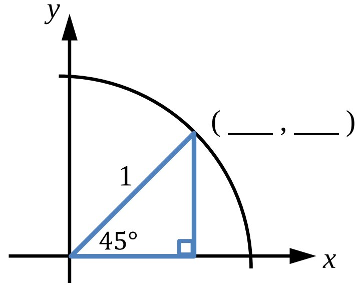


[20-22]: Fill-in the missing information in the following drawings; each triangle is a special right triangle.

20.



21.



22.