Practice for Trig. Final Exam—Fall 2016

Right Triangles:

~Draw a picture for each problem to help demonstrate your understanding of each concept.~		
(1) If one side of a right triangle is 14cm and the other is 21cm, what is the length of the hypotenuse? (Leave your answer in simplified radical form, no decimals)	*(2) If one side of a right triangle is 6in and the hypotenuse is 15in, what trig ratio would you use to find the angle between them and what is the angle rounded to the nearest 10^{th}?*	*(3) The smallest side of a right triangle is 18mm. The angle opposite the smallest side is 21°. What is the measure of the Hypotenuse? (Round your answer to the nearest 10^{th})*

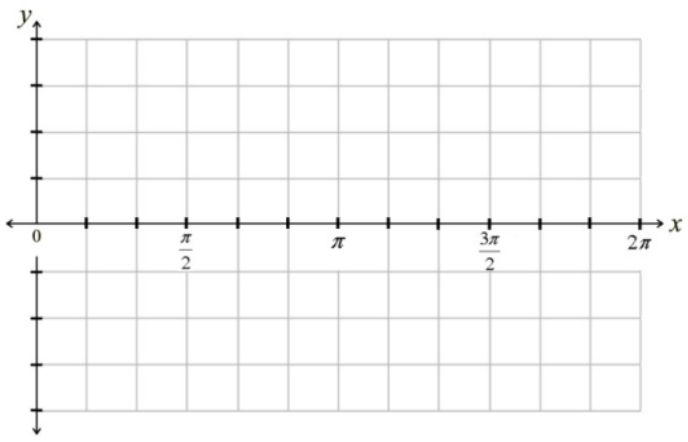
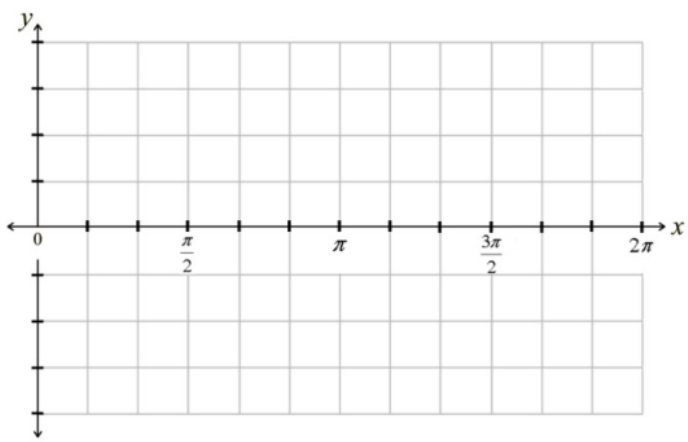
Non Right Triangles:

~Draw a picture for each problem to help demonstrate your understanding of each concept.~	
(4) On a baseball field, the pitcher's mound is 60.5 feet from home plate. During practice, a batter hits a ball 261 feet at an angle of 31° to right of the pitcher's mound (towards right field). An outfielder catches the ball and throws it to the pitcher. How far does the outfielder throw the ball?	*(5) A security guard, stationed on top of parking garage looks down and sees a really cool car on the ground level at a 46° angle of depression. His buddy, stationed at the parking garage on the other side of the lot sees the same car at a 38° angle of depression. If the parking garages are exactly 300 feet apart, how far is the cool car from each parking garage?*

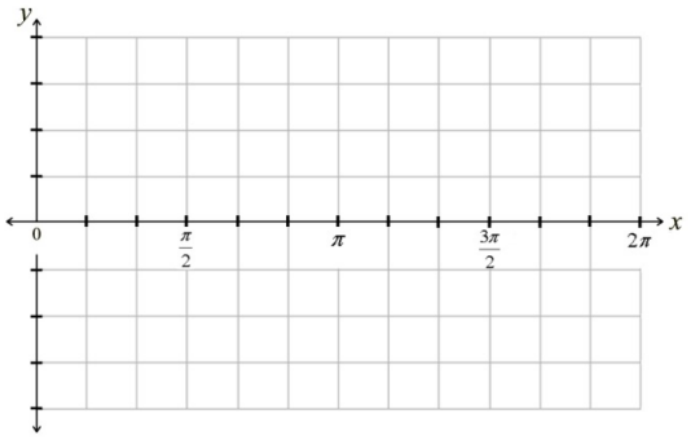
Unit Circle Trigonometry:

~Evaluate each expression without using a calculator. (Leave answer in exact form, no decimals).~			
(6) $\sin(-210°)$	*(7)* $\cot(-150°)$	*(8)* $\cos(240°)$	*(9)* $\csc(-495°)$
~Find the exact angle measure for each trigonometric expression.~			
(10) $sin\theta = \frac{\sqrt{3}}{2}$	*(11)* $cos^{-1}\left(\frac{1}{2}\right) = \theta$	*(12)* $tan\theta = \frac{\sqrt{3}}{3}$	*(13)* $sec^{-1}(2) = \theta$

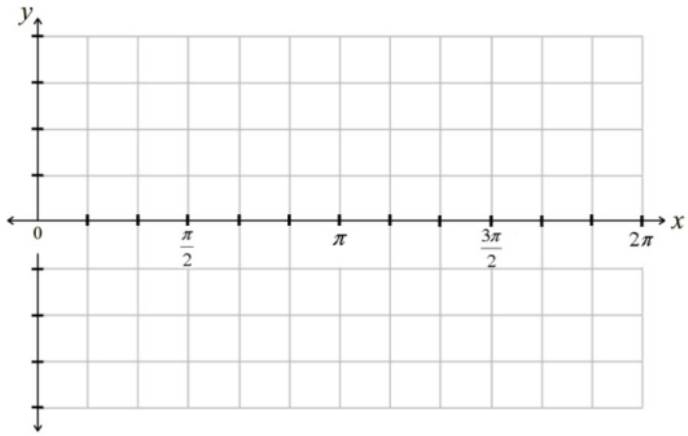
Graphing Trigonometric Functions:

~~~Graph at least one period of each function and label the 5 critical values.~~~	
(14) $y = cot(\theta) - 2$ 	*(15)* $y = csc(\theta)$ 

(16) $y = sin\left(\theta - \frac{3\pi}{4}\right) - 1$



(17) $y = -3cos(2\theta) + 1$



Trigonometric Identities:

(18) Verify the following Identity:

$$\frac{1 - sin\theta}{cos\theta} = \frac{cos\theta}{1 + sin\theta}$$

(19) Prove the following Identity:

$$\frac{tan\theta + cot\theta}{sec\theta csc\theta} = 1$$