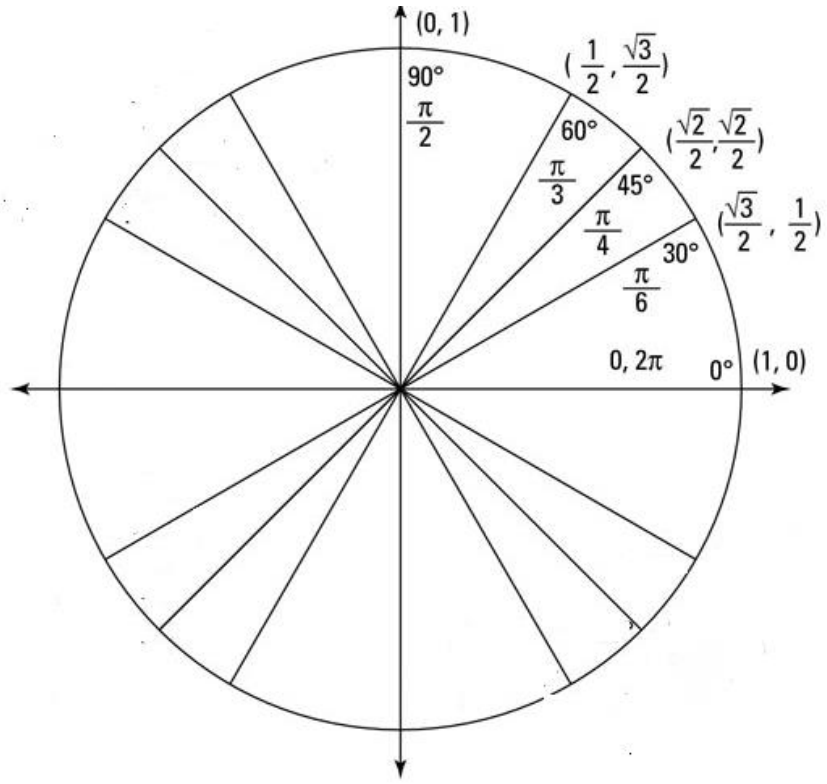
Algebra 2/Trig IB Chapter 5 Test Review 2019 Name_____

**** ON THE TEST ** You will be *given*:**



The unit circle, with the 1st quadrant filled out for you. You will need to know the remaining values to complete various problems on the test. However, I will NOT be grading your completion of the unit circle.

You will also be given these formulas:
They will NOT be labeled, and will appear as they do below. So, you are going to have to recognize which are which, and will need to know when to 'utilize them.

$\sin^2 u = \frac{1-\cos 2u}{2}$ $\cos^2 u = \frac{1+\cos 2u}{2}$

$\tan^2 u = \frac{1-\cos 2u}{1+\cos 2u}$

$\sin\frac{u}{2} = \pm\sqrt{\frac{1-\cos u}{2}}$ $\cos\frac{u}{2} = \pm\sqrt{\frac{1+\cos u}{2}}$ $\tan\frac{u}{2} = \pm\frac{1-\cos u}{\sin u} = \frac{\sin u}{1+\cos u}$

$\sin u \sin v = \frac{1}{2}[\cos(u-v) - \cos(u+v)]$ $\cos u \cos v = \frac{1}{2}[\cos(u-v) + \cos(u+v)$

$\sin u \cos v = \frac{1}{2}[\sin(u+v) + \sin(u-v)]$ $\cos u \sin v = \frac{1}{2}[\sin(u+v) - \sin(u-v)]$

$\sin u + \sin v = 2\sin(\frac{u+v}{2})\cos(\frac{u-v}{2})$ $\sin u - \sin v = 2\cos\left(\frac{u+v}{2}\right)\sin(\frac{u-v}{2})$

$\cos u + \cos v = 2\cos\left(\frac{u+v}{2}\right)\cos(\frac{u-v}{2})$ $\cos u - \cos v = -2\sin(\frac{u+v}{2})\sin(\frac{u-v}{2})$

You must show ALL of your work NEATLY to get credit on the test.

You will need to complete these on notebook paper. Your test will have PLENTY of space to complete each problem. (trying to save paper!!! ☺)

Find the exact value of each. Round to the nearest thousandths place.

1. $\cos(105°)$

2. $\cos(70°)\cos(25°) + \sin(70°)\sin(25°)$

3. Use power-reducing-formulas to write $\cos^2(x)\tan^2(x)$ in terms of a first power cosine.

4. Use product-to-sum formulas to write $\sin 6x \cos 3x$ as a sum or difference.

5. Use sum-to-product formulas to find the exact value of $\cos 195° + \cos 105°$. Round to the nearest thousandths place.

On the test, you will choose 7 OF THE 8 problems to complete/have graded. You will have to circle them so I know which you want graded.

For 6-9, solve on the interval $[0°, 360°)$. For 10-13, solve on the interval $0 \le x < 2\pi$

6. $4\sin^2(x) + 7 = 10$

7. $\cos(2x) + \cos(x) = 0$

8. $\cot^2(x) + \csc(x) = 1$

9. $2\sin(2x) - \sqrt{3}\cos(x) = 0$

10. $\tan^4(x) - 4\tan^2(x) + 3 = 0$

11. $1 + \sin(x) = \cos^2(x)$

12. $\csc^2(x) - \sqrt{2}\csc(x) = 0$

13. $2\cos^2(x) + \sin(x) = 1$

Verify each. On the test, you will choose 5 OF THE 6 problems to complete/have graded. You will have to circle them so I know which you want graded. **Every single step must be shown in a neat, organized manner.**

14. $\cos(x) + \sin(x)\tan(x) = \sec(x)$

15. $\frac{\cos(x)}{1+\sin(x)} + \frac{\cos(x)}{1-\sin(x)} = 2\sec(x)$

16. $\frac{1-\sin^2\theta}{\sin\theta(1+\sin\theta)} + 1 = \csc\theta$

17. $tan^4(x) + 2\tan^2(x) + 1 = \sec^4(x)$

18. $\frac{\sin\theta}{\cos\theta+\sin\theta} + \frac{\sin\theta}{\cos\theta-\sin\theta} = \tan 2\theta$

19. $\csc^2(x)\sec^2(x) = \csc^2(x) + \sec^2(x)$