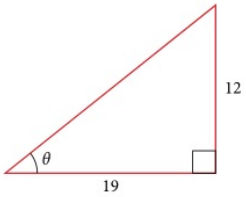
NAME _____

MATH 114: FALL 2021	QUIZ 3 (10PTS+10PTS BONUS)

You may use your homework solutions. I need to look at your class notes while you take this. You are allowed a 3x5 inch card of formulas. Thanks! 2pts per problem.

Problem 1: Find the length of the hypotenuse and the angle θ in the triangle pictured below:



Problem 2: Given $\sin\theta = -1/2$ and $\cos\theta = \sqrt{3}/2$ find $\sec\theta$.

Problem 3: Simplify $\cos 41x \cos x - \sin 41x \sin x$.

Problem 4: Simplify $\sin 4x \cos 3x - \cos 4x \sin 3x$.

Problem 5: Simplify $\sin 7x + \sin 5x$ using one of the sum to product identities.

Problem 6: Simplify $\sin 4x \cos 11x$ using one of the product to sum identities.

Problem 7: Use trigonometric identities to simplify the expression below:

$$-2\cos(-x)\sin(-x)$$

Problem 8: Find exact value of $\sin(2\theta)$ given that $\sin\theta = -1/5$ and θ is in Quadrant III.

Problem 9: Use trigonometric identities to rewrite the expression below in terms of a sum of cosine functions with various arguments:

$$\sin^4(\theta)$$

Problem 10: If α, β and γ are angles in the same triangle, then prove that $\sin(\alpha + \beta) = \sin\gamma$.