

Trigonometry

Name: _____

Study Guide 17

Class: _____

Due Date: _____

Score: _____

No Work \Leftrightarrow No Points

Use Pencil Only \Leftrightarrow Be Neat & Organized

1. (3 points) Use a sum-to-product formula to rewrite $\sin 5x + \sin 3x$ as a product.

1. _____

2. (3 points) Use a sum-to-product formula to find the exact value of $\cos 75^\circ + \cos 15^\circ$.

2. _____

3. (3 points) Use a sum-to-product formula to rewrite $\cos 3x - \cos 9x$ as a product.

3. _____

4. (4 points) Use a sum-to-product formula to find the exact value of

$$\cos \frac{\pi}{12} + \cos \frac{5\pi}{12}.$$

4. _____

5. (4 points) Find the exact value of $\sin(2x)$ given $\csc x = \frac{3}{2}$ and $90^\circ < x < 180^\circ$.

5. _____

6. (4 points) Find the exact value of $\tan(x/2)$ given $\cot x = 5$ and $180^\circ < x < 270^\circ$.

6. _____

7. (4 points) Verify that $\frac{\sin 10x}{\sin 9x + \sin x} = \frac{\cos 5x}{\cos 4x}$

8. Use $22.5^\circ = \frac{45^\circ}{2}$,

(a) (3 points) find the exact value for $\sin 22.5^\circ$

(a) _____

(b) (3 points) find the exact value for $\cos 22.5^\circ$

(b) _____

(c) (3 points) find the exact value of $\tan 22.5^\circ$

(c) _____

(d) (3 points) find the exact value of $\cot 22.5^\circ$

(d) _____

9. (3 points) Find the exact value of $\sin(2x)$ given $\sec x = \frac{-3}{2}$ and $180^\circ < x < 270^\circ$.

9. _____

10. (3 points) Find the exact value of $\tan(2x)$ given $\cot x = -5$ and $90^\circ < x < 180^\circ$.

10. _____

11. (2 points) Verify that $\frac{\sin 10x}{\sin 5x \cos 5x} = 2$

12. (2 points) Verify that $\frac{\cos 10x}{\cos 5x - \sin 5x} = \cos 5x + \sin 5x$

13. (3 points) Use a product-to-sum formula to rewrite $\sin 5x \cdot \cos 3x$ as a sum.

13. _____