Trigonometry	Name:
Study Guide 13	Class:
Due Date:	Score:

No Work ⇔ No Points

Use Pencil Only ⇔ Be Neat & Organized

1. **(3 points) Use a product-to-sum formula to rewrite** $\cos 2x \cos 3x$ **as a sum.**

1. _____

2. **(4 points) Use a product-to-sum formula to find the exact value of** $\cos 15° \sin 45°$**.**

2. _____

3. **(3 points) Use a product-to-sum formula to rewrite** $6 \sin 10x \sin 6x$ **as a sum.**

3. _____

4. **(4 points) Use a product-to-sum formula to find the exact value of**
$-4\cos\left(x+\dfrac{\pi}{6}\right)\cos\left(x-\dfrac{\pi}{6}\right).$

4. _____

5. **(4 points) Find the exact value of** $\sin(x/2)$ **given** $\csc x = \dfrac{3}{2}$ **and** $0° < x < 90°$.

5. _____

6. **(4 points) Find the exact value of** $\cos(x/2)$ **given** $\sin x = -\dfrac{1}{4}$ **and** $270° < x < 360°$.

6. _____

7. **(4 points) Verify that** $2\sin 3t \sin 2t = \cos t - \cos 5t$

8. Use $75° = 45° + 30°$ **and** $15° = 45° - 30°$,

    (a) (3 points) find the exact value for $\sin 75°$ **and** $\cos 15°$

(a) _____

    (b) (3 points) find the exact value for $\sin 15°$ **and** $\cos 75°$

(b) _____

    (c) (3 points) use last two answers to find the exact value of $\sin 75° \sin 15°$

(c) _____

    (d) (3 points) use product-to-sum formula to find the exact value of $\sin 75° \sin 15°$

(d) _____

9. Use $105° = 60° + 45°$ **and** $15° = 60° - 45°$,

   (a) (3 points) find the exact value for $\cos 105°$

                                                   (a) _____

   (b) (3 points) find the exact value for $\cos 15°$

                                                   (b) _____

   (c) (3 points) use last two answers to find the exact value of $\cos 105° \cos 15°$

                                                   (c) _____

   (d) (3 points) use product-to-sum formula to find the exact value of $\cos 105° \cos 15°$

                                                   (d) _____