Student: _____ **Date:** _____ **Time:** _____	**Instructor:** Fred Khoury **Course:** Math 2312-1000 Precalculus (Fall - 2015) **Book:** Lial: College Algebra and Trigonometry, 4e	**Assignment:** Quiz Sec 3.3

1. Use identities to find the indicated value for each angle measure.

Find $\cos(2\theta)$ if $\sin\theta = \frac{12}{13}$, $\cos\theta > 0$

A. $-\frac{9}{13}$

B. $\frac{119}{169}$

C. $-\frac{119}{169}$

D. $\frac{120}{169}$

2. Use identities to find the indicated value for each angle measure.

Find $\sin(2\theta)$ if $\cos\theta = \frac{20}{29}$, $\sin\theta < 0$

A. $-\frac{41}{841}$

B. $\frac{840}{841}$

C. $-\frac{840}{841}$

D. $\frac{41}{841}$

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3. Use identities to find the indicated value for each angle measure.

Find **sin** (2θ) if **tan** $\theta = \frac{4}{3}, \pi < \theta < \frac{3\pi}{2}$

A. $-\frac{24}{25}$

B. $\frac{24}{25}$

C. $\frac{7}{25}$

D. $-\frac{7}{25}$

4. Use identities to find the indicated value for each angle measure.

Find **cos** (2θ) if **sin** $\theta = -\frac{4}{5}, \frac{3\pi}{2} < \theta < 2\pi$

A. $-\frac{7}{25}$

B. $\frac{7}{25}$

C. $\frac{24}{25}$

D. $-\frac{24}{25}$

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5. Use an identity to write the expression as a single number.

$$\frac{2\ \mathbf{tan}\ (15°)}{1 - \mathbf{tan}^{\,2}(15°)}$$

A. $\frac{\sqrt{2}}{2}$

B. $\frac{\sqrt{2}}{4}$

C. $\sqrt{3}$

D. $\frac{\sqrt{3}}{3}$

6. Use an identity to write the expression as a single number.

$2\ \mathbf{cos}^{\,2}(75°) - 1$

A. $-\frac{1}{2}$

B. $\frac{1}{2}$

C. $-\frac{\sqrt{3}}{2}$

D. $\frac{\sqrt{3}}{2}$

7. Use an identity to write the expression as a single trigonometric function.

$\mathbf{sin}\ 8x\ \mathbf{cos}\ 8x$

A. $2\ \mathbf{sin}\ 4x$

B. $\mathbf{cos}\ 4x$

C. $\mathbf{cos}\ 8x$

D. $\frac{1}{2}\ \mathbf{sin}\ 16x$

8. Write the function in terms of **sin** x and **cos** x.

sin 4x

A. **cos** ^{3}x − 3 **sin** ^{2}x **cos** x

B. 4 **sin** x **cos** ^{3}x − 4 **sin** ^{3}x **cos** x

C. 1 − 8 **sin** ^{2}x **cos** ^{2}x

D. 3 **sin** x − 4 **sin** ^{3}x

9. Find the exact value by using a half-angle identity.

cos (165°)

A. $\frac{1}{2}\sqrt{2+\sqrt{3}}$

B. $\frac{1}{2}\sqrt{2-\sqrt{3}}$

C. $-\frac{1}{2}\sqrt{2+\sqrt{3}}$

D. $-\frac{1}{2}\sqrt{2-\sqrt{3}}$

10. Find **cos** $\frac{x}{2}$, given that **cos** x = $\frac{1}{4}$ and $0 < x < \frac{\pi}{2}$.

A. $\frac{\sqrt{8-2\sqrt{15}}}{4}$

B. $\frac{\sqrt{10}}{4}$

C. $\frac{\sqrt{6}}{4}$

D. $\frac{\sqrt{8+2\sqrt{15}}}{4}$

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11. Find $\sin \frac{x}{2}$, given that $\sin x = \frac{1}{4}$ and $0 < x < \frac{\pi}{2}$.

A. $\frac{\sqrt{8-2\sqrt{15}}}{4}$

B. $\frac{\sqrt{8+2\sqrt{15}}}{4}$

C. $\frac{\sqrt{6}}{4}$

D. $\frac{\sqrt{10}}{4}$

12. Find $\cos \frac{\theta}{2}$, given that $\cos \theta = -\frac{3}{5}$ and $90° < \theta < 180°$.

A. $-\frac{\sqrt{30}}{10}$

B. $\frac{\sqrt{5}}{5}$

C. $-\frac{\sqrt{5}}{5}$

D. $\frac{\sqrt{30}}{10}$

13. Write the function in terms of $\sin x$ and $\cos x$.

$\sin 2x \cos 2x$

A. $\cos^4 x - 6 \sin^2 x \cos^2 x + \sin^4 x$

B. $2 \sin x \cos^3 x - 2 \sin^3 x \cos x$

C. $4 \sin^2 x \cos^2 x$

D. $\cos^4 x - 2 \sin^2 x \cos^2 x + \sin^4 x$