Review Test 4

MATH 1330 Review for Test -4

Time: 50 minutes
Number of questions: 11 Multiple Choice

What is covered: 5.1, 4.4, Chapters 6 and 7.

Do not forget to reserve a seat for Test – 4!
Take practice Test – 4!

Example 1: Simplify:

a. \( \frac{\cos x}{- \cot(-x)} \)

b. \( \cos \theta \sec(-\theta) - \sin(-\theta) \csc \theta \)

c. \( \sin \alpha \tan \alpha + \cos \alpha \)

Example 2: Simplify

\( \frac{1 - \cot^2 x}{1 + \cot^2 x + 2 \cos^2 x} \)
Example 3: Given $\sin x = \frac{2}{3}$, with $90^\circ < x < 180^\circ$, and $\sin y = -\frac{1}{3}$ with $180^\circ < y < 270^\circ$
Find:

$\sin(x + y)$

$\sin(x - y)$

$\cos (x + y)$

$\cos(x - y)$
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\[ \sin(2x) \]

\[ \cos(2x) \]

**Example 4:** Given \( \cos x = \frac{1}{4} \) with \( 270^\circ < x < 360^\circ \). Find \( \tan(2x) \)

**Example 5:** Suppose that \( \sec(x) = \frac{8}{7} \) and that \( 0^\circ < x < 90^\circ \). Compute \( \sin(-x) \).

**Example 6:** Determine all solutions to \( \sin 3\theta = \frac{1}{2} \) on the interval \( [0, 2\pi) \).
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**Example 7:** Solve the following equation on the interval \( [0, 2\pi) \).

\[
3 \cos^2 x - 8 \cos x + 5 = 0
\]

**Example 8:** Solve the following equation on the interval \( [0, 2\pi) \).

\[
2 \sin^2 x + \sin x - 1 = 0
\]

**Example 9:** Find using the sum or difference formulas.

a. \( \cos(15^\circ) \)

b. \( \sin(75^\circ) \)
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**Example 10:** A ramp for wheelchair accessibility is to be constructed with an angle of elevation of 14 degrees and a final height of 4 ft. How long is the ramp?

**Example 11:** Find the area of triangle XYZ if $\angle Y = 60^\circ$, $z = 8$ and $x = 4$.

**Example 12:** ABC is a triangle with $AB = 10$, $BC = 13$, and $AC = 7$. Find $\cos(A)$.
*Note: You are asked to find $\cos(A)$ not the measure of angle $A$. Do not use a calculator.*

**Example 13:** Given triangle ABC with $AB = 3$, and $BC = 3\sqrt{2}$ The measure of angle $A$ is $135^\circ$. How many choices are there for the measure of angle $C$?
Example 14: In acute triangle ABC, the measure of angle A is $2x$, the length of AB is 7, and the length of AC is $\sqrt{3}$. If $\sin(x) = \frac{1}{6}$, what is the area of the triangle?

Example 15: Two cyclists leave the corner of State Street and Main Street simultaneously. State Street and Main Street are not at right angles; the cyclists’ paths have an angle of $150^\circ$ between them. How far apart are the cyclists after they each travel 7 miles?

Example 16: ABC is a triangle with $AB = 9$, $BC = 14$, and $AC = 12$. Find $\cos(A)$. Note: You are asked to find $\cos(A)$ not the measure of angle A. Do not use a calculator.

Example 17: Given $\sin(x) = \sqrt{11}/6$ where $x$ is an acute angle. Find $\sin(\frac{x}{2})$. 