Name: _____ Date: _____

QUIZ

PreCal/Calculus: Limits - Trigonometry

Review Concepts

Problem Solving

Directions:

You have 20 minutes to find the solution, or to complete the functions. Use the concept of Limits, its formal definition, rules of calculating Limits, and methods for calculating Limits.

Solve, or sketch the graph of the function f (x). Analyze the Graph when appropriate. Clearly indicate the necessary steps, if necessary.

Grade: _____

Teacher's Signature: _____

1. Apply the Limits concept. Consider many limits problems, discuss the following Limit Forms, and explain why they must be evaluated with caution.

a.) $\frac{0}{3} = \blacksquare$

b.) $\frac{5}{0 + \blacksquare} = \blacksquare$

c.) $\frac{5}{0 - \blacksquare} = \blacksquare$

d.) $3^{\infty} = \blacksquare$

Hint:

Every indeterminate limit problem can be done; we do not accept "indeterminate" as a final answer.

For example, if a problem is of the form 0/0, there is an answer (perhaps, 0, or 1, or -2, or infinite, or - infinite, or " no limit"), but it ussually requires a special method.

Remember --> One-side limits... as x approaches 0 from the right.

2. Apply the Limits concept. Consider many limits problems, discuss the following Limit Forms, and explain why they must be evaluated with caution.

a.) $\left(\frac{1}{2}\right)^{\infty} =$ ∎

b.) $\frac{\infty}{8} =$ ∎

c.) $\infty \cdot \infty =$ ∎

d.) $\infty \cdot (-\infty) =$ ∎

Hint:

Every indeterminate limit problem can be done; we do not accept "indeterminate" as a final answer.

For example, if a problem is of the form 0/0, there is an answer (perhaps, 0, or 1, or -2, or infinite, or - infinite, or " no limit"), but it ussually requires a special method.

Remember --> One-side limits... as x approaches 0 from the right.

3. Apply the Limits concept. Consider many limits problems, discuss the following Limit Forms, and explain why they must be evaluated with caution.

a.) $\frac{0}{\infty} = \blacksquare$

b.) $\frac{0}{-\infty} = \blacksquare$

c.) $\infty^{1} = \blacksquare$

d.) $\infty^{\frac{1}{2}} = \blacksquare$

Hint:

Every indeterminate limit problem can be done; we do not accept "indeterminate" as a final answer.

For example, if a problem is of the form 0/0, there is an answer (perhaps, 0, or 1, or -2, or infinite, or - infinite, or " no limit"), but it ussually requires a special method.

Remember --> One-side limits... as x approaches 0 from the right.

4. Apply the Limits concept. Consider many limits problems, discuss the following Limit Forms, and explain why they must be evaluated with caution.

a.) $(0)^{0} = \blacksquare$

b.) $(\infty)^{0} = \blacksquare$

c.) $\lim_{x \to \infty} e^{x} \cdot \ln(x) = \blacksquare$

d.) $\lim_{x \to 0+\blacksquare} e^{x} \cdot \ln(x) = \blacksquare$

Hint:

Every indeterminate limit problem can be done; we do not accept "indeterminate" as a final answer.

For example, if a problem is of the form 0/0, there is an answer (perhaps, 0, or 1, or -2, or infinite, or - infinite, or " no limit"), but it ussually requires a special method.

Remember --> One-side limits... as x approaches 0 from the right.
Also, One-Side Limits involving exponential functions.

5. Complete the following Trigonometric Functions

a.) $\sin^2(x) + \cos^2(x) =$ ▮

b.) $\sin(2x) =$ ▮

c.) $\cos(2x) =$ ▮

d.) $\tan(2x) =$ ▮

6. Complete the following Trigonometric Functions

a.) $\sin(a + b) =$ ▮

b.) $\cos(a + b) =$ ▮

c.) $\tan(a + b) =$ ▮

d.) $\frac{a}{\sin(A)} =$ ▮

Hint: The law of sines

7. Draw the following Trigonometric Functions

a.) $y = a \cdot \sin(x)$ with amplitud 5

b.) $y = a \cdot \cos(x)$ with amplitud 5

c.) $y = \tan(x)$ with open interval $(-2\pi, 0, 2\pi)$