Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Units 4, 5, and 6 Study Guide!

1. The expression $\frac{\sin(θ)}{\tan(θ)}$ is equivalent to

A $\sin(θ)$ B $\frac{\sin(θ)}{cos^{2}θ}$

C $\cos(θ)$ D $\frac{cos^{2}θ}{\sin(θ)}$

2. What is the value of cos(270$°$)?

A) 0 B) -1

C) $\frac{\sqrt{2}}{2}$ D) - $\frac{\sqrt{2}}{2}$

3. When simplified, cos2 θ (1 + cot 2 θ) is equivalent to which expression below:

A. sin2 θ + cos2 θ

B. -1

C. tan2 θ

D. cot2 θ

4. When simplified, the expression: (cosθ)(tanθ) is equivalent to

A. cotθ

B. tanθ

C. sinθ

D. 1

5. The Pythagorean identity that contains csc2x is

A. sin2x + csc2x = 1

B. 1 + cot2x = csc2x

C. 1 + csc2x= cot2x

D. sin2x + cos2x = 1

6. Solve the equation for all Θ: sinx + 1 = 0

A. 270

B. 180

C. 90

D. -270

7. Simplify the expression below. Make sure to circle your final answer.

$$sin^{2}x\left(csc^{2}x-1\right)$$

8. Prove the following expression will give you the final answer of **csc(θ)**

cot(θ)cos(θ) + sin(θ) = **csc(θ)**

1. What are the equations of the asymptotes and the initial value for the function$: y=\frac{5}{1+2e^{-2x}}$?

|  |  |
| --- | --- |
| A | Horizontal asymptotes: $y=0$. Max: $y=15$. Initial value $=2$. |
| B | Horizontal asymptotes: $y=0$. Max: $y=5$. Initial value $=5/3$. |
| C | Horizontal asymptotes: $y=0$. Max: $y=5$. Initial value $=5$. |
| D | Horizontal asymptotes: $y=0$. Max: $y=15$. Initial value $=5$. |

2. Explain how you know that the **amplitude** of the function

*f(x) = -2cos(3x) – 2* is **2**. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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3. What is the period of the function f(x) = 3cos(4x – 8)?

A) $\frac{2π}{4}$ B) $\frac{π}{4}$

C) π D) $\frac{π}{2}$

4. Analyze the range of the function: f(x) = $\frac{20}{1+ 5e^{x}}$

A. (0, ∞)

B. (0, -∞)

C. (-∞, ∞)

D. (0, 20]