MAT 201 Quiz 9

Mar. 26, 2020

1. [14] Find the derivative of the function

$$d(y) = \pi^y.$$

2. [16] Find the derivative of the function

$$q(w) = \tan(w) - \csc(w),$$

when $w = \pi/3$. Simplify your answer as much as possible and leave your answer exact.

3. [19] Find the derivative of the function

$$u(v) = \frac{v^2 - 1}{\sin(v)}$$

when $v = \pi/4$. Simplify your answer as much as possible and leave your answer exact.

4. [18] Use differentiation rules to find the derivative of the function

$$h(n) = 5\tan(n)\sec(n)$$

when $n = \pi/6$. Simplify your answer as much as possible and leave your answer exact.

Use the function $f(x) = \sqrt[3]{x}$ to answer the next two questions

5. $\boxed{11}$ Find the algebraic equation of the tangent line to $f(x)$ at $x = 8$.

6. $\boxed{12}$ Use the linear approximation that you found in the last question to approximate the $\sqrt[3]{8.12}$.

7. [20] Find the derivative of the function

$$w(v) = \cot(\tan(x)).$$

8. [8] Given the graph of a function below, determine whether the function has a limit at $x = 0$ and at $x = 1$. Explain your answer.