Section 3.10: Derivatives of Inverse Trigonometric Functions

MATH 130: Calculus I

Due: Wednesday, March 27, 2019 at 12:20pm Name (Print): _____

After reading Section 3.10 (pages 218-224 in the text), respond to the following questions **on this handout**. Be sure to staple your pages together before turning it in. **You must answer all parts to all questions to earn full credit!!!** See the salmon homework guidelines handout for details. You are encouraged to take additional notes wherever you are keeping your class notes.

Response Section

1. On the first page of the section, they show how to obtain the formula for the derivative of $y = \arcsin x$ using the inverse properties and implicit differentiation. Copy that here.

2. In the proof of the derivative of inverse sine you just wrote, the text uses a trigonometric identity to bring the reader back to x's. There is an alternate method, which we discussed at the beginning of the semester. Using the fact that $\sin y = x = \frac{x}{1}$, we can make and label a triangle to figure out what $\cos y$ is. (Note that here y is the angle!) Do this now and use it to explain and illustrate what $\cos y$ is.

3. Write down Theorem 3.20: Derivatives of Inverse Trigonometric Functions.

4. Write down Theorem 3.21: Derivative of the Inverse Function.

5. Apply Theorem 3.21 to this question. Suppose f is one-to-one with $f(2) = 8$ and $f'(2) = 24$. What is the value of $(f^{-1})'(8)$? Explain briefly.

Questions/Exercise Section

6. Write down at least two questions you have on the reading. OR if you have NO questions, do exercise 36 in Section 3.10 (page 225). Be sure to show all steps for full credit! See the salmon homework guidelines handout for details.

Reflection Section

7. Write **two or three** sentences reflecting on the progress of your recent work in the course. See the salmon homework guidelines handout for details.

Time Section

8. How much time did you spend on this reading assignment? _____