

## Math 155 Worksheet 1

Name:

ID:

1. Give a function  $f(x) = \frac{2}{x+3}$ , evaluate  $\frac{f(x+h) - f(x)}{h}$ , and simplify your answer so that the denominator of your answer does not contain the factor  $h$ .

2. Find the domain of  $f(x) = \frac{3}{\sqrt{x^2 - 5x}}$ .

3. Find the domain and sketch the graph of the function  $f(x) = |2x + 1|$ .

4. Jason leaves Detroit at 2:00pm and drives at a constant speed west along I-96. He passes Ann Arbor, 40 miles from Detroit, at 2:50PM.

(A) Express the distance travelled in terms of the time elapsed.

(B) Draw the graph of the equation in Part (A).

(C) What is the slope of this line in Part (B)? What does it represent?

5. Given functions  $f(x) = 1 - x^3$ ,  $g(x) = \frac{1}{x+1}$ , find the functions  $f \circ g$ ,  $g \circ f$ , and  $f \circ f$ , and determine their domains.