

Name: _____

Math 151 Calculus I – Crawford

Exam 1 - Extra Credit Problems

Due: Monday, 30 September 2019 by 1pm

Books, notes, and calculators are allowed. You are allowed to work with each other, but you may not get help from me or the tutors. Show all your work. Good Luck!

1. (2 pts) Find the domain of $f(x) = \sqrt{3x^2 - 6x}$.

You must show all intermediate work.

2. (1 pts) True or False: When finding limits, if you get a form of $\frac{0}{0}$, you must check the one-sided limits.

3. (3 pts) The position of a particle at time t seconds is given by $s(t) = \frac{10}{t+2}$ cm.

(a). Find the average velocity of the particle over the time interval $[0, 3]$.

(b). **Use the limit definition** $v(a) = \lim_{t \rightarrow a} \frac{s(t) - s(a)}{t - a}$ or $v(a) = \lim_{h \rightarrow 0} \frac{s(a+h) - s(a)}{h}$ to find the instantaneous velocity when $t = 3$.
You must use the limit definition and you must show all of your work.