- **To use this as a practice quiz, you should have studied the problem banks in advance.**
- **Put away all material and set a timer for 10 minutes. (You will have 10 minutes for this quiz in class.)**
- **Go to your math mentors study hours to check your answers.**

Practice Quiz: Critical Points, Fall 2017 Version: 1

Name (Print):_____ **RIN:**_____

Math Mentor Name:_____

Rules: Notes, calculators, cell phones and headphones are not allowed.

Honor Code Pledge: I did not violate any rules on this quiz and have no knowledge of any other student violating rules on this quiz. _____(Signature)

Instructions: Put your final answer in the box shown. No partial credit will be given and nothing outside the box will be graded.

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1. Find all the critical points of $f(x) = \frac{1}{3}x^3 - \frac{15}{2}x^2 + 56x + \sin(\ln(2))$, if any. Express your answer(s) in simplified form.

2. Find all the positive critical points of $f(x) = 18x^2 + \frac{23}{x}$, if any. Express your answer(s) in simplified form.

3. Find all the critical points of $f(x) = (x-5)^2(2x+8)$, if any. Express your answer(s) in simplified form.

4. Find all the critical points of $f(x) = \dfrac{x-2}{x^2+12}$, if any. Express your answer(s) in simplified form.

5. Suppose the twice differentiable function has derivatives with signs as in the chart below. State the interval(s) on which f is decreasing.

	$x<1$	$1<x<3$	$3<x<7$	$7<x$
$f'(x)$	-	-	-	+
$f''(x)$	-	+	+	+