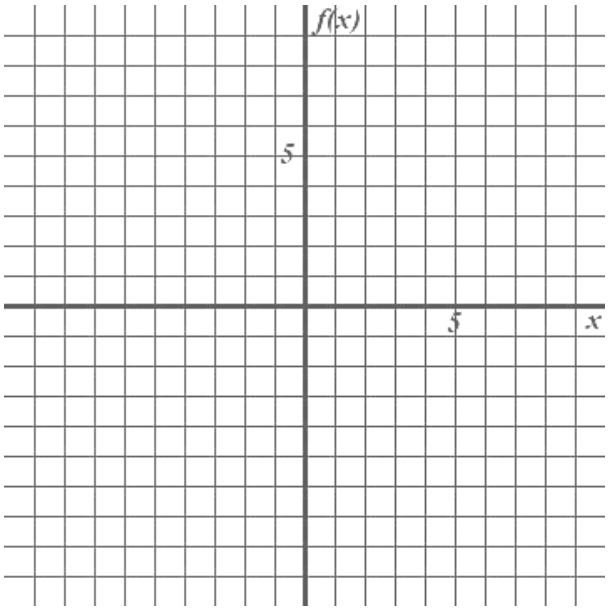
Math 124 Quiz #2 **NAME**_____

No books or notes allowed. Show relevant work and put a box around your answer.

1 **[8 points]** On the axes provided, sketch a graph of a function $f(x)$ that satisfies each of the following properties.

- it has a domain of $[-10,10]$;
- it is discontinuous at $x=-2$ and $x=6$, but it is continuous at all other points.
- it satisfies $\lim_{x\to 6^-} f(x)=7$;
- it satisfies $\lim_{x\to -2} f(x)=-3$;
- it is continuous from the left at $x=6$.

<u>Read carefully and draw clearly</u>.



2 **[12 points]** A clown rides a unicycle along the *x*-axis. His position (in feet) at time *t* (in seconds) is given by $x=\sqrt{t+1}$.

(a) Calculate his average velocity from $t=2$ seconds to $t=2.4$ seconds.

Answer: _____
(give 2 places after the decimal)

(b) Calculate his instantaneous velocity at $t=2$ seconds. Use the techniques from the sections we have covered (no other techniques from other calculus classes). Leave your answer as an exact fraction with $\sqrt{\ }$'s (not a decimal), and show all of your work.

Answer: _____ (exact)