AP Calculus BC Mr. Shubleka Quiz: 0

Present neatly on separate paper. Justify for full credit. No Calculators.

Name _____ Score _____ ~20 minutes / A

1. Find the domain of $f(x)=\frac{\sqrt{7-x}}{x-6}+\frac{1}{\sqrt{x-5}}$.

$(x-5>0)\wedge(x-6\neq 0)$

$\wedge(7-x\geq 0)$

$\Leftrightarrow$

$x>5 \wedge x\neq 6$

$\wedge x\leq 7$

D: $(5,6)\cup(6,7]$

2. Sketch the graph of the function:

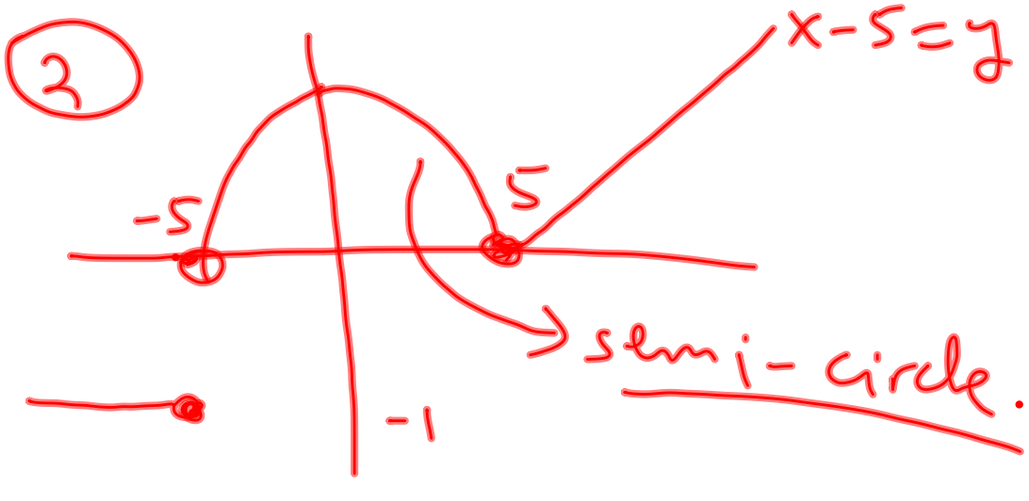
$$f(x)=\begin{cases}-1, & x\leq -5\\ \sqrt{25-x^2}, & -5<x<5\\ x-5, & x\geq 5\end{cases}$$

3. Find the inverse $f^{-1}(x)$ or explain why it does not exist.

$f(x)=3+4x^5$.

4. Briefly describe what the expression *multi-representational approach to problem-solving* means.

(2)



(3) $y=3+4x^5$

$x=3+4y^5$

$\left(\frac{x-3}{4}\right)^{1/5}=y=f^{-1}(x)$

(4) see notes / Ch zero.

AP Calculus BC Mr. Shubleka Quiz: 0

Present neatly on separate paper. Justify for full credit. No Calculators.

Name _____ Score _____ ~20 minutes / F

1.Find the domain of $f(x)=\frac{1}{\sqrt{x-3}}+\frac{\log x}{x-4}$.

$$f(x)=\frac{1}{\sqrt{x-3}}+\frac{\log x}{x-4}$$

$$x-3>0 \wedge x>0 \wedge x-4\neq 0$$

$$D:(3,4)\cup(4,\infty)$$

2. Find a formula for $f\circ g\circ h$ and state the domain of this composition if

$$f(x)=\frac{x}{x-1},\quad g(x)=\frac{1}{x},\quad h(x)=x^2-1$$

3. Find the inverse $f^{-1}(x)$ or explain why it does not exist.
$f(x)=(x-1)^2$.

4. Two functions $f(x)$ and $g(x)$ have domains A and B, respectively.
State the domains of $f+g,\ f-g,\ fg,\ \frac{f}{g}$. Briefly explain your answers.

$$f(g(h(x)))=\frac{\frac{1}{x^2-1}}{\frac{1}{x^2-1}-1}=\frac{1}{2-x^2}$$

3. The inverse mapping exists, but it isn't a function. The given parabola fails the horizontal line test.

4. The domains of the new functions are given by the intersection of A and B. In the case of the quotient, we omit any x value that makes g(x) equal to zero.

$$x\neq\pm 1; x\neq\pm\sqrt{2}$$