

Student Name: _____

Show all relevant work (use back of pages for scratch paper, if needed). **CIRCLE FINAL ANSWERS.**
Leave answers as fractions, not decimals. Each question is worth 7 points.

1. Let $f(x) = \frac{\sqrt{4-x}}{2x+3}$.

(a) What is the domain of f ?

(b) Evaluate $f(-5)$.

2. Let $f(x) = \begin{cases} 2-x & \text{if } x \leq 0 \\ x^2 + 8 & \text{if } x > 0 \end{cases}$

(a) Evaluate $f(7)$.

(b) Evaluate $f(-2)$.

3. For the function $h(z) = 9 + z^3$ on the interval from $z = -1$ and $z = 2$,

(a) what is the net change?

(b) what is the average rate of change?

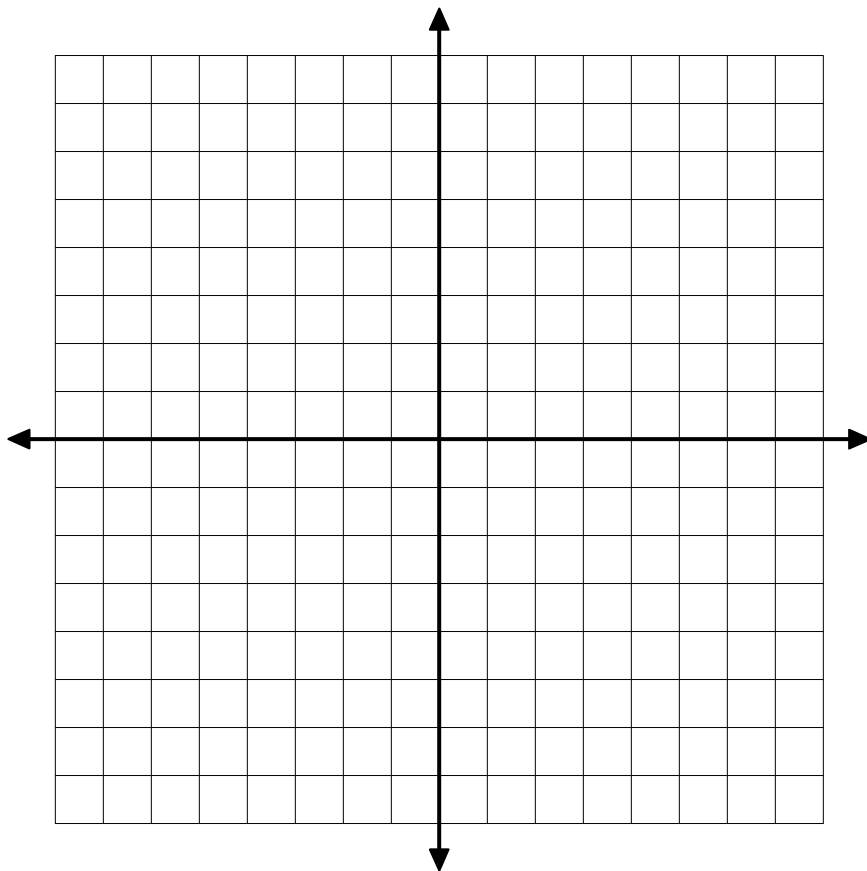
4. A function g is described in words as: "Add 1 to the number, then take the square root."

(a) Express function g algebraically.

(b) Complete the chart of values for g :

x	$g(x)$
-1	
0	
1	
3	
8	

(c) Plot the points and sketch the graph of g using the table from (b) as a guide.



5. If $f(x) = x^2 - 5$ and $g(x) = 3x + 6$, find the following :

(a) $(f + g)(8)$

(b) $(g \circ f)(x)$

(c) $(g - f)(x)$

(d) $(fg)(2)$

6. On the grid below sketch the graph of $f(x) = |x|$. Then, sketch the graph of $g(x) = |x - 4| + 1$. You may plot points by hand or use knowledge of transformations. Please label each graph drawn.
[7pts, each graph]

