Name Key

AFM Quiz Review

1. Given that x is any integer $-2 < x < 4$, find the following for the function $y = 2x + 3$.
   a. State the relation
   $\{(-1,1)(0,3)(1,5)(2,7)(3,9)\}$
   b. Domain
   $\{-1,0,1,2,3\}$
   c. Range
   $\{1,3,5,7,9\}$

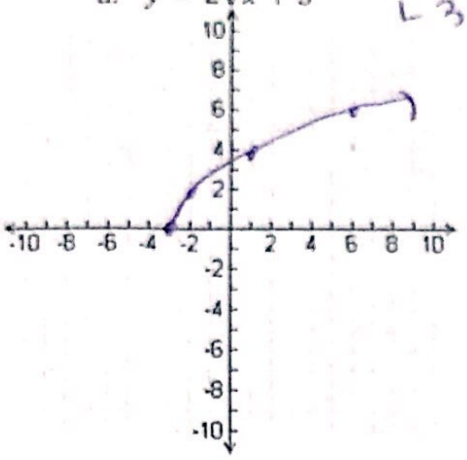
2. Find the domain algebraically. Write answers in interval notation.
   a. $f(x) = \frac{3x}{x^2-16}$
   $x \neq 4, -4$
   $(-\infty,-4) \cup (-4,4) \cup (4,\infty)$
   b. $g(x) = \sqrt{2x+6}$
   $2x+6 \geq 0$
   $x \geq -3$
   $[-3,\infty)$

3. Given the functions $f(x) = |4x-2|$, $h(x) = \frac{x}{x+5}$ and $g(x) = [\![2x]\!] - 1$, evaluate the following.
   a. $h(3)$ $\frac{3}{8}$
   b. $f(-2)$ 10
   c. $g(1.5)$ 2
   d. $g(-2.7)$ -7
   e. $h(-4)$ -4
   f. $f(7)$ 26

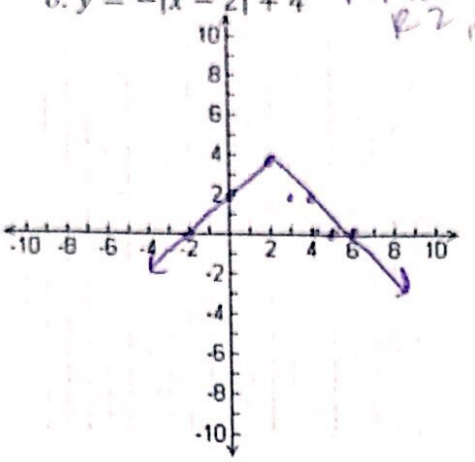
4. From the parent function $f(x)$, describe the transformations in order.
   a. $y = -2f(x+4)$
   - Reflect x-axis
   - V. stretch by 2
   - L 4
   b. $y = f(3x-9)+2$
   $= f(3(x-3))+2$
   - H. comp 1/3
   - R 3
   - up 2
   c. $y = \frac{1}{4}f(x) - 8$
   - V. comp $\frac{1}{4}$
   - ↓ 8
   d. $y = f(-\frac{1}{3}x)$
   - Reflect y-axis
   - H. stretch by 3

5. Graph the following functions.

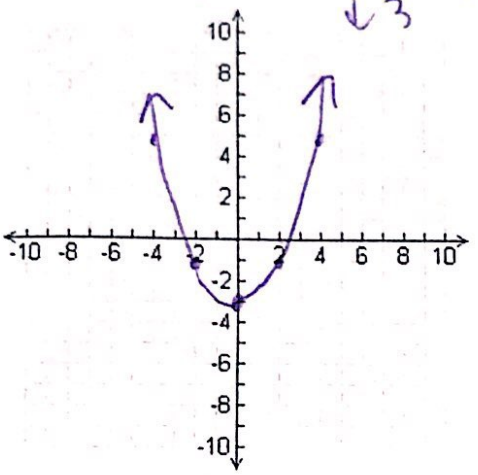
a. $y = 2\sqrt{x+3}$ V. stretch L 3



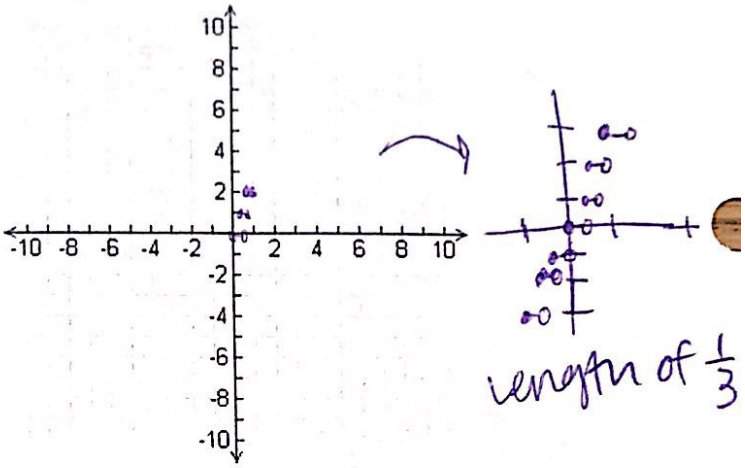
b. $y = -|x-2|+4$ Reflect R 2, 4



c. $y = \frac{1}{2}x^2 - 3$ V comp ↓3



d. $y = [\![3x]\!]$ H. comp $\frac{1}{3}$



length of $\frac{1}{3}$

6. Find all holes, intercepts and asymptotes.

a. $y = \frac{x-2}{x-4}$

VA: $x=4$
HA: $y=1$
SA: none
Hole: none
x-int: $(2,0)$
y-int: $(0, +1/2)$

b. $y = \frac{x^2-x-6}{x^2+x-6}$ $\frac{(x-3)(x+2)}{(x+3)(x-2)}$

VA: $x=-3, x=2$
HA: $y=1$
SA: none
Hole: none
x-int: $(3,0)(-2,0)$
y-int: $(0,1)$

c. $y = \frac{x^2+3x+2}{x^2-2x-8}$ $\frac{(x+2)(x+1)}{(x-4)(x+2)}$

VA: $x=4$
HA: $y=1$
SA: none
Hole: $(-2, \frac{1}{6})$ $\frac{-2+1}{-2-4} = \frac{-1}{-6}$

x-int: $(-1,0)$
y-int: $(0, -\frac{1}{4})$