HW Review

31. What is the range of the function defined by

$$f(x) = \begin{cases} x^{\frac{1}{3}}, & x > 2 \\ 2x - 1, & x \le 2 \end{cases}$$?

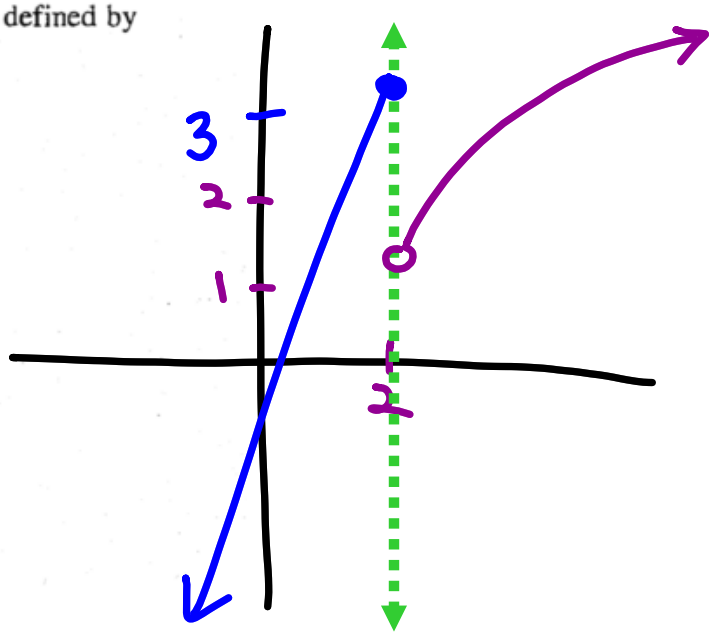
(A) $y > 2^{\frac{1}{3}}$

(B) $y \le 3$

(C) $2^{\frac{1}{3}} < y < 3$

(D) $y \ge 3$

(E) All real numbers



48. If $f(x) = \begin{cases} x & \text{when } 0 \le x < 1 \\ f(x-1) & \text{when } x \ge 1 \end{cases}$,

what is the value of $f(4.7)$?

(A) 4.7
(B) 3.7
(C) 0.7
(D) 0.3
(E) −0.3

$f(4.7) = f(3.7) = f(2.7)$

$\cdots = f(.7) = .7$

32. If $f(x) = |5 - 3x|$, then $f(2) =$

(A) $f(-2)$

(B) $f(-1)$

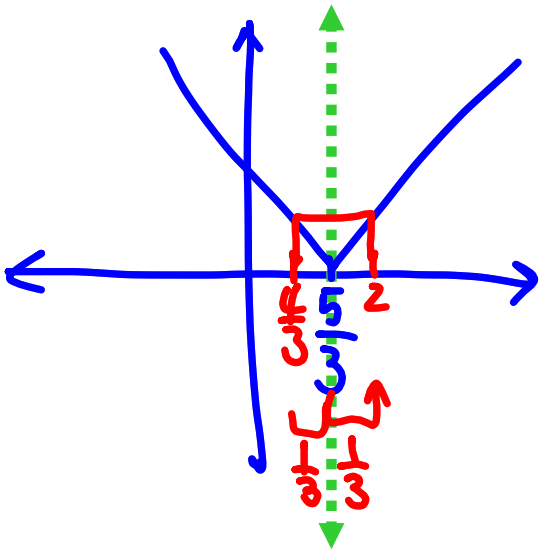
(C) $f(1)$

(D) $f\left(\frac{4}{3}\right)$

(E) $f\left(\frac{7}{3}\right)$

$x = \frac{5}{3}$

$f(x) = a|x-h|+k$



② $|5-3x|$

$= |3x-5|$

$= \left|3\left(x-\frac{5}{3}\right)\right| = 3\left|x-\frac{5}{3}\right|$

V: $\left(\frac{5}{3}, 0\right)$

11. (55%) For every real number x, $[x]$ denotes the greatest integer less than or equal to x. Find all values of x in the interval $1 \leq x < 2$ that satisfy $[x]^2 = [x^2]$.

$1 \leq x < 2$

$[x]$

$1 = 1^2 = [x^2]$

$1 \leq x^2 < 2$

$1 \leq x < \sqrt{2}$

29. (68%) Let x be a nonintegral positive number and let $[x]$ denote the greatest integer n such that $n \leq x$. Find the value of $([x] + [-x])^5$.

$$\left([3.6] + [-3.6]\right)^5 \rightarrow (-1)^5 = -1$$

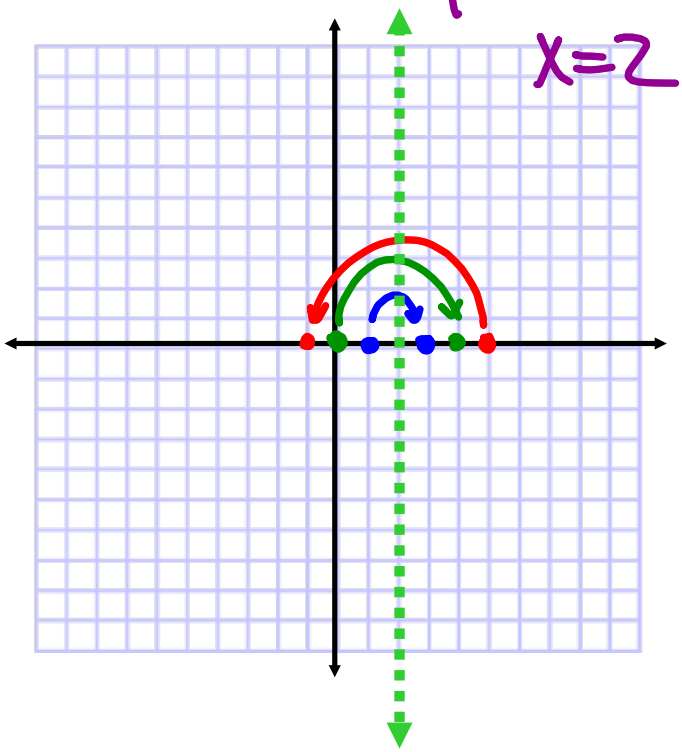
$[3.6] \rightarrow 3$

$[-3.6] \rightarrow -4$

Let $f(x) = f(4-x)$: $y=f(x)$ is sym. abt $x=2$

If $f(1)=f(5)=f(0)=0$,
Find 3 values of a, where
$f(a)=0$, $a \neq 1, 5,$ nor 0.

3, -1, 4



$f(x) = f(6-x)$

Find the line of Sym.

$x = 3$

If $y=f(x)$ is sym abt

$x=k$,

$f(x)=f(2k-x)$