NOTES

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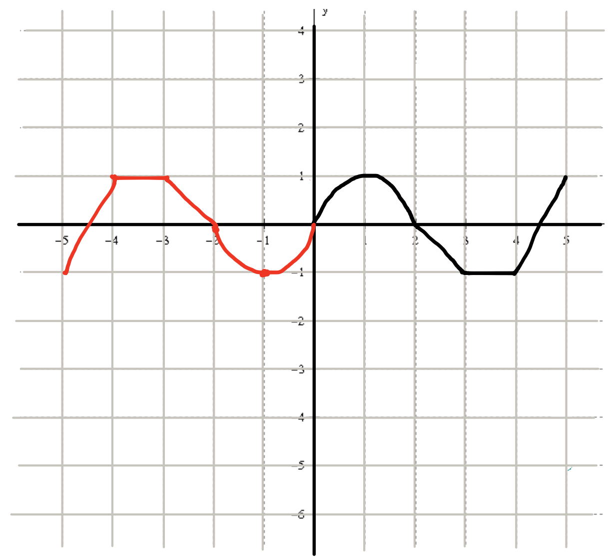
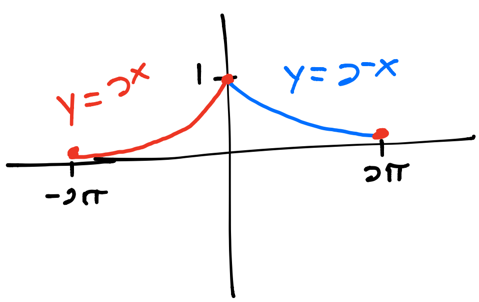
APPLICATION

Determine algebraically whether each function is even, odd, or neither. SHOW WORK!	**Given that the $f(x)$ is continuous on $[-5,5]$ and ODD, draw the graph $f(x)$ from $[-5,0]$**
1. $f(x) = 2x^4 - 3x^2 + 7$ Even $(-x, y)$ $y = 2(-x)^4 - 3(-x)^2 + 7$ $y = 2x^4 - 3x^2 + 7$	2. 

3. Show that the piecewise function is odd or even. Don't be lame and just guess one. Justify your answer!!

$$f(t) = \begin{cases} 2^x, & -2\pi \le x < 0 \\ 2^{-x}, & 0 \le x < 2\pi \end{cases}$$



Even because the graph is symmetric to the y-axis.

For 4-9, use the piecewise function $g(x)$.

$$g(x) = \begin{cases} -1 & -5 < x \le -4 \\ -(x+2)^2+5, & -4 < x \le -1 \\ -x, & -1 < x \le 0 \end{cases}$$

4. Graph the $g(x)$ below.

5. Given that the function is Even from $[-5, 5]$, draw in the missing portion on the interval $(0,5]$

6. State the intervals where the function is continuous.

CONTINUOUS: $(-5,-4]$, $(-4,-1]$, $(-1,1)$, $[1,4)$, $[4,5)$

7. Identify the points of discontinuity and label them removable, nonremovable jump, or nonremovable infinite.

Removable	Nonremovable
Hole @ $x = -5, 5$	Jump @ $x = -4, -1, 1, 4$

8. Write the equation of the piecewise function from $(0,5]$

$$g(x) = \begin{cases} -1, & 4 \le x < 5 \\ -(x-2)^2+5, & 1 \le x < 4 \\ x, & 0 < x < 1 \end{cases}$$

9. Find:

a. $g(4) = -1$

b. $g(-5) =$ DNE

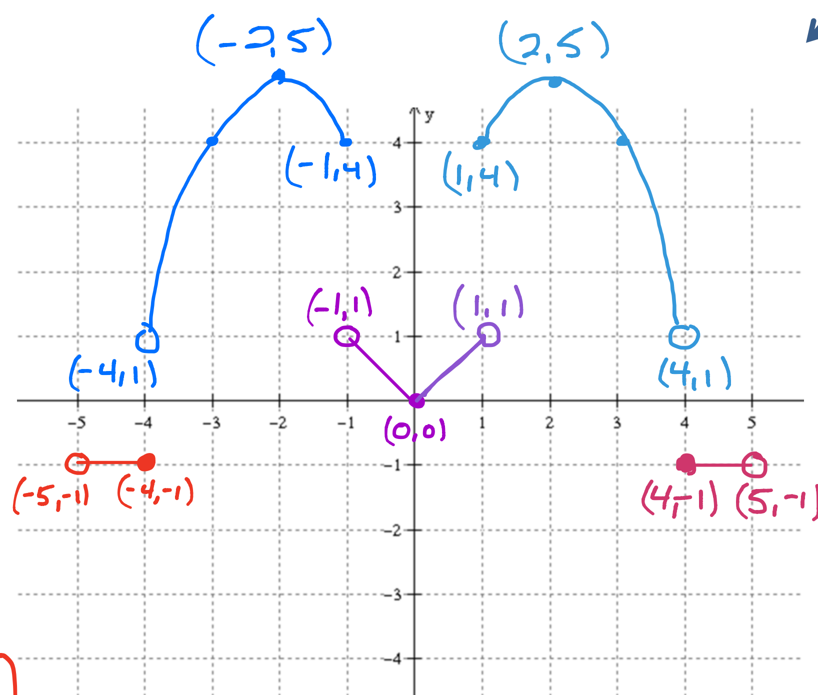
c. Find x if $g(x) = -2$ DNE

d. y-intercept $= 0$

e. x-intercept(s) $= 0$

f. Domain $= (-5, 5)$

g. Range $= -1 \cup [0,1) \cup (1,5]$



h. $\lim_{x \to -1^-} g(x) = 4$

i. $\lim_{x \to -1^+} g(x) = 1$

j. $\lim_{x \to -1} g(x) =$ DNE