

key

2016/2017

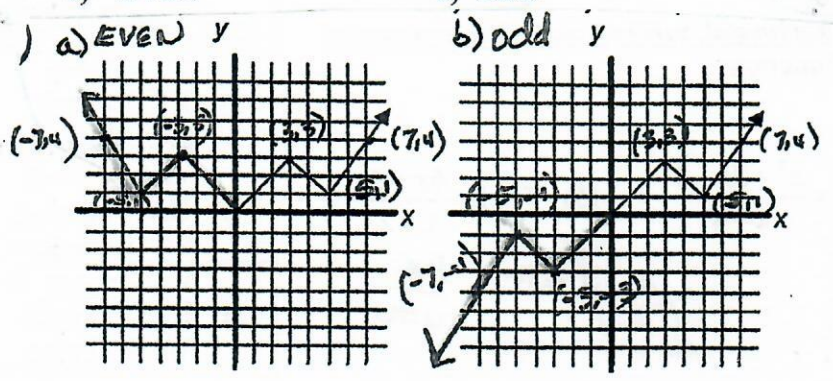
PRE-CALCULUS  
MR2

Assignment # \_\_\_\_\_

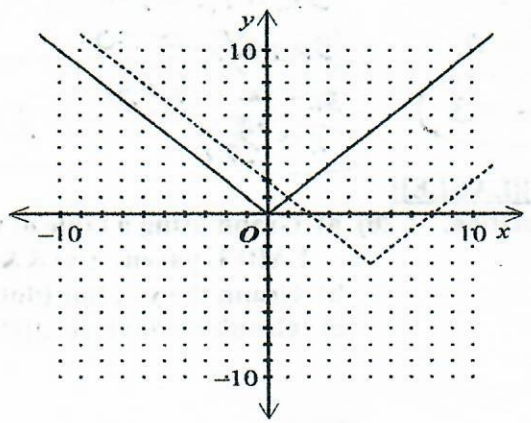
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SHOW ALL THE WORK CLEARLY.

- 1) Complete the graph such that: a) it is even, and b) it is odd.



- 2) Identify the change in the parent function  $f(x) = |x|$  that will produce the related function:



In problems (3-9), use the following functions:  $f(x) = 2x+1$  and  $g(x) = 3x^2 - 1$ .

- 3)  $(f \cdot g)(x)$                       4)  $(f + g)(x)$                       5)  $(f - g)(x)$
- 6)  $(f \circ g)(x)$                       7)  $g(f(x))$
- 8)  $g(f(-2))$                       9)  $f(g(3))$

2)	$f(x) =  x-5  - 3$
3) $(f \cdot g)(x) =$	$6x^3 + 3x^2 - 2x - 1$
4) $(f + g)(x) =$	$3x^2 + 2x$
5) $(f - g)(x) =$	$-3x^2 + 2x + 2$
6) $(f \circ g)(x) =$	$6x^2 - 1$
7) $g(f(x)) =$	$12x^2 + 12x + 2$
8) $g(f(-2)) =$	26
9) $f(g(3)) =$	53

Handwritten work for problem 5:

$$2x+1 - (3x^2 - 1)$$

$$2x+1 - 3x^2 + 1$$

$$-3x^2 + 2x + 2$$

In problems (10-12), state the domain:

10)  $\frac{12}{2x+3}$

$2x+3=0$   
 $2x=-3$   
 $x=-\frac{3}{2}$   
 all IR,  $x \neq -\frac{3}{2}$

11)  $\frac{4x-3}{x^2-81}$   
 $(x+9)(x-9)$   
 $x \neq \pm 9$

12)  $\frac{x^2-3x-18}{(x-6)}$   
 $x \neq 6$

In problems (13-15), determine the horizontal, vertical, and slant asymptotes (if any) of the graph of each of the functions:

13)  $f(x) = \frac{4}{x-4}$

VA:  $x=4$   
 HA:  $y=0$   
 No SA

Solve:

16)  $x^2+4x=21$   
 $x^2+4x-21=0$   
 $(x+7)(x-3)=0$   
 $x=-7, x=3$

14)  $f(x) = \frac{x^2+3x-3}{x+4}$

VA:  $x=-4$   
 HA: none  
 SA:  $y=x+4$

17)  $x^2 = -9 - 6x$   
 $x^2+6x+9=0$   
 $(x+3)^2=0$   
 $x=-3$

15)  $f(x) = \frac{6x+8}{x-2}$

VA:  $x=2$   
 HA:  $y=6$

18)  $-7x-6=-3x^2$

$3x^2-7x-6=0$   
 $(3x+2)(x-3)=0$   
 $3x=-2$   
 $x=-\frac{2}{3}$   
 $x=3$

10)  $(-\infty, -\frac{3}{2}) \cup (-\frac{3}{2}, \infty)$

11)  $(-\infty, -9) \cup (-9, 9) \cup (9, \infty)$

12)  $(-\infty, 6) \cup (6, \infty)$

13) VA:  $x=4$   
 HA:  $y=0$   
 SA: none

14) VA:  $x=-4$   
 HA: none  
 SA:  $y=x-1$

15) VA:  $x=2$   
 HA:  $y=6$   
 SA: none

16)  $x=-7, x=3$

17)  $x=-3$

18)  $x=-\frac{2}{3}, x=3$

Graph the function and its inverse as follows: [LABEL]

19) a) Graph the parent graph with the translation.

LABEL parent  $f(x)$  & inverse  $f^{-1}(x)$

b) Graph the  $y=x$  line (dotted line).

c) Graph the inverse. [HIGHLIGHT]

20) a) Graph using a table of values

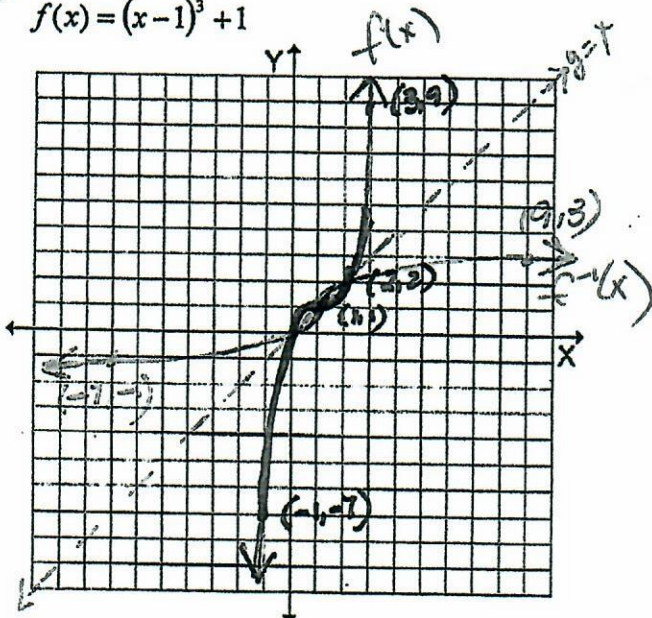
LABEL parent  $h(x)$  & inverse  $h^{-1}(x)$

b) Graph the  $y=x$  line (dotted line).

c) Graph the inverse. [HIGHLIGHT]

(19) c) Graph the inverse.

$f(x) = (x-1)^3 + 1$



(20) c) Graph the inverse.

$h(x) = 3|x| + 2$

x	y
-3	11
-2	8
-1	5
0	2
1	5
2	8
3	11

