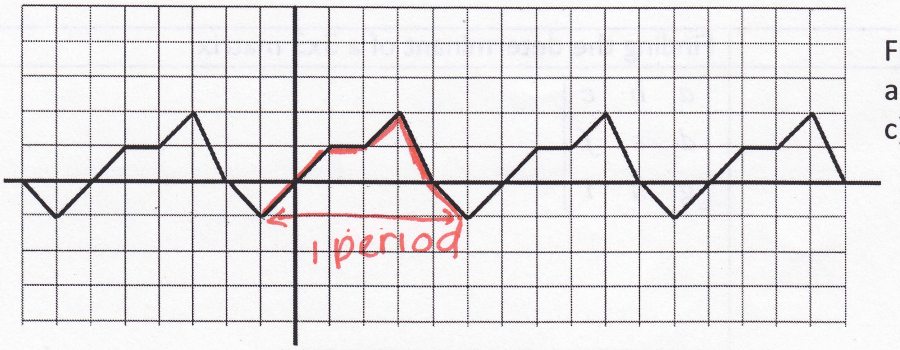
Trig/Math Analysis Chapter 4 Review A Name _____ Assignment # _____

1. Given y = f(x)



$6\overline{)45}$ R3 $6\overline{)70}$ $\frac{2--1}{2}=$ $\frac{1}{2}$

Find:

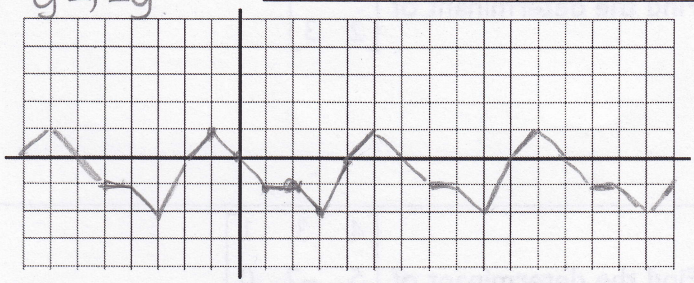
a) period 6 b) amplitude

c) f(45) $f(3)=2$ d) f(-70) $f(-4)=1$

-1	0	1	2	3	4	5
-1	0	1	1	2	0	-1

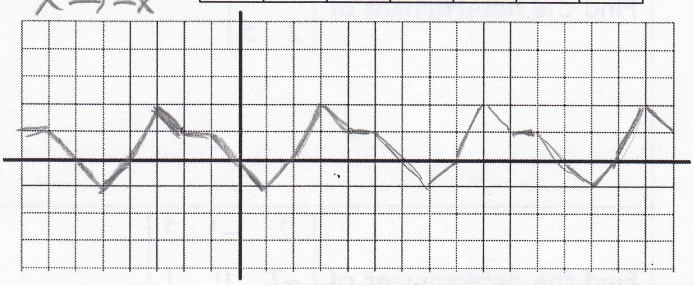
2. $y=-f(x)$ $y\to -y$

-1	0	1	2	3	4	5
1	0	-1	-1	-2	0	1



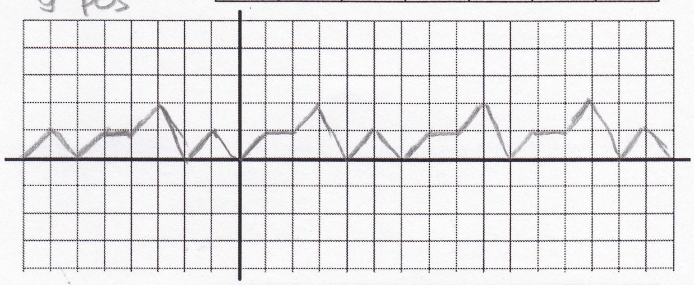
3) $y=f(-x)$ $x\to -x$

1	0	-1	-2	-3	-4	-5
-1	0	1	1	2	0	-1



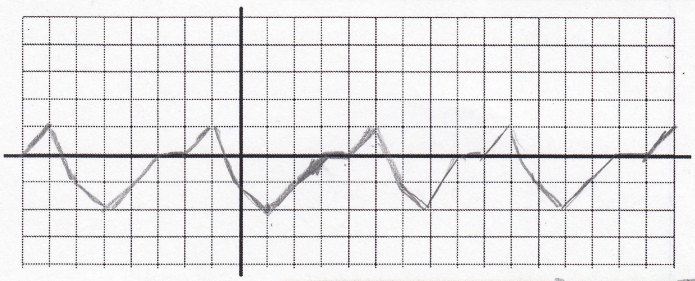
4. $y=|f(x)|$ y pos

-1	0	1	2	3	4	5
1	0	1	1	2	0	1



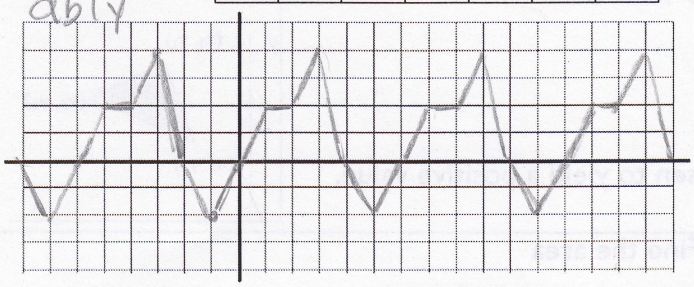
5) $y+1=f(x-2)$

1	2	3	4	5	6	7
-2	-1	0	0	1	-1	-2



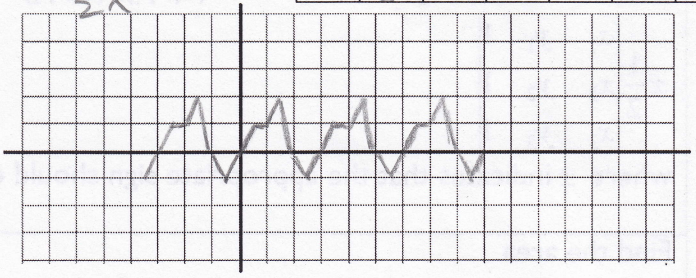
6) $y=2f(x)$ dbl y

-1	0	1	2	3	4	5
-2	0	2	2	4	0	-2



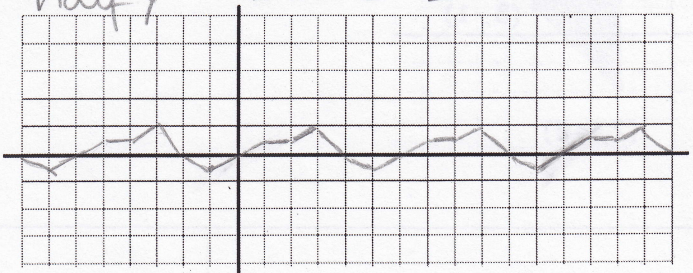
7) $y=f(2x)$ $\frac{1}{2}x$

$-\frac{1}{2}$	0	$\frac{1}{2}$	1	$\frac{3}{2}$	2	$\frac{5}{2}$
-1	0	1	1	2	0	-1



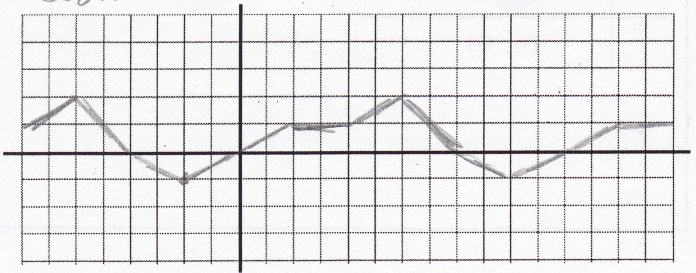
8) $y=\frac{1}{2}f(x)$ half y

-1	0	1	2	3	4	5
$-\frac{1}{2}$	0	$\frac{1}{2}$	$\frac{1}{2}$	1	0	$-\frac{1}{2}$

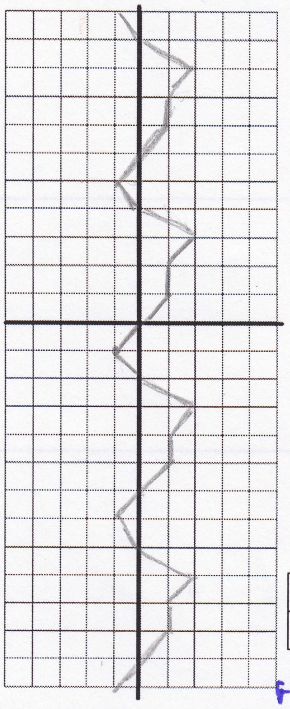


9) $y=f\left(\frac{1}{2}x\right)$ dbl x

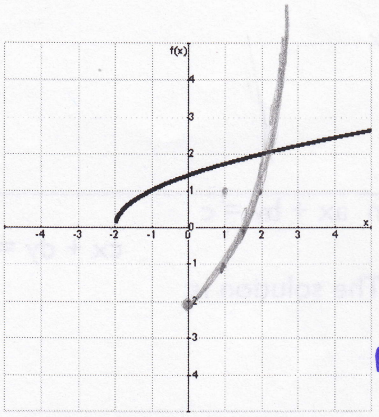
-2	0	2	4	6	8	10
-1	0	1	1	2	0	-1



10) x and y switched



11. Graph $y = f^{-1}(x)$



-2	-1	0	2	switch
0	1	1.5	1	

-1	0	1	1	2	0	-1
-1	0	1	2	3	4	5

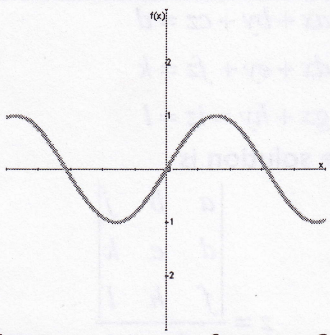
1

$$\frac{x-3}{x^2-1}$$

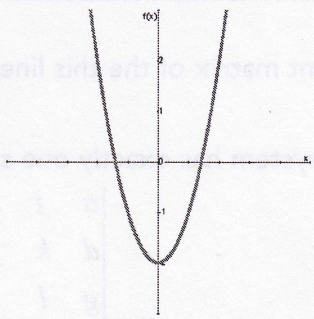
14. Find the range:

a) $y = |x|$

b)

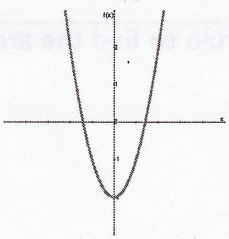


c)

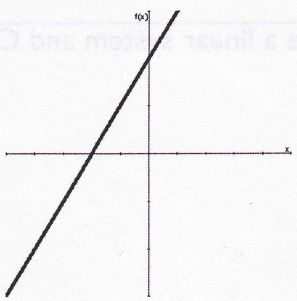


15) Which of the following have an inverse function?

a)

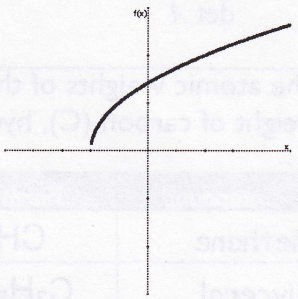


b



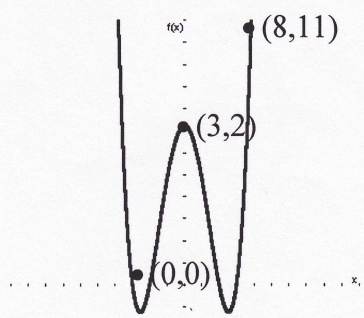
c) $y = |x| + 3$

d)

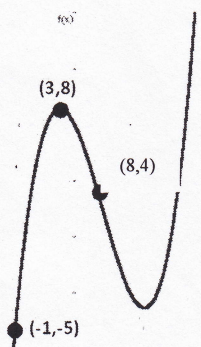


16) Name as many other points on graph as possible using point and line symmetry.

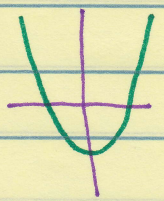
a)



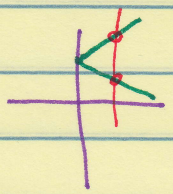
b)



17) p.162 #9, 11, 12

12. 

Function
passes Vertical Line Test

b 

not a function
Doesn't pass VLT

c $x+y^2=16$

$x=7 \rightarrow 7+y^2=16$.

$y^2=9$

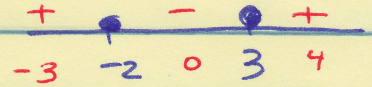
$y=\pm 3$

There are 2 values of y for $x=7$ → not a function

d. $xy=4 \rightarrow y=\frac{4}{x}$ yes. For every x, there's only 1 y value.

13 $\sqrt{x^2-x-6}$: $x^2-x-6 \geq 0$

$(x-3)(x+2) \geq 0$



4 : + + → ⊕

0 : − + → ⊖

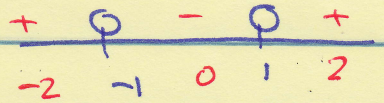
−3 : − − → ⊕

$x \geq 3$ or $x \leq -2$

b. $\frac{2x-3}{\sqrt{x^2-1}}$ → $x^2-1 > 0$ can't be zero because denominat

$\neq 0$

$(x+1)(x-1) > 0$



2 : + + → ⊕

0 : + − → ⊖

−2 : − − → ⊕

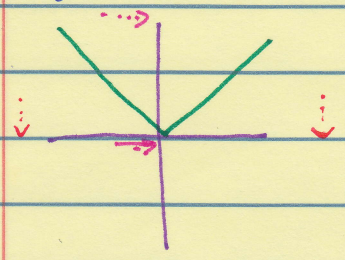
$x > 1$ or $x < -1$

c. $\frac{x-3}{x^2+2x-8}$ $x^2+2x-8 \neq 0$ can't divide by zero

$(x+4)(x-2) \neq 0$

$x \neq -4 \quad x \neq 2$

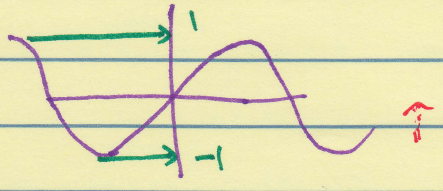
14 $y = |x|$



D: all real #s

R: $y \geq 0$

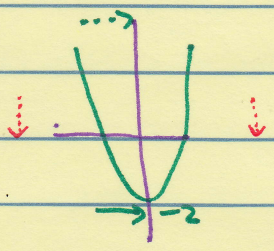
b



D: all real #s

R: $-1 \leq y \leq 1$

c

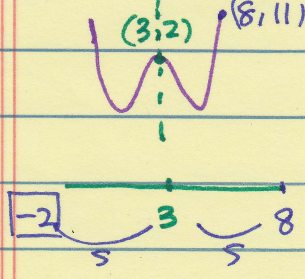


D: all real #s

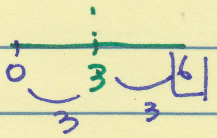
R: $y \geq -2$

15 b & d because they both pass the horizontal & vertical line test and hence are one-to-one

16. @ line symmetry



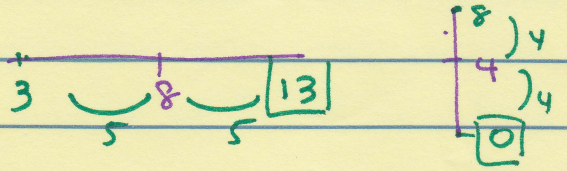
(-2,11)



(6,0)

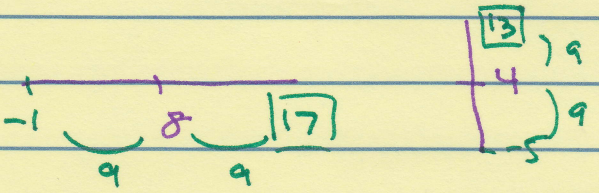
16b Point symmetry : (8, 4)

(3, 8)



(3, 8) → (13, 0)

(−1, −5)



(−1, −5) → (17, 13)

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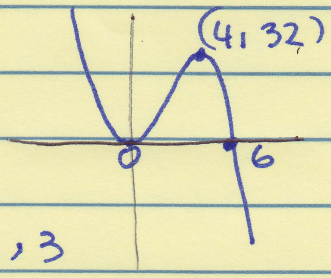
13. a $y = f(2x)$ → half your x

local max (2, 32)

zeros : $\frac{0}{2}, \frac{6}{2}$ or 0, 3



b. $y = 2f(x)$ dbl y values

local max (4, 32(2)) = (4, 64)

zeros : 0 , 6 (y values remain zero)

c $y = f(x-2)$ → add 2 to x.

local max : (4+2, 32) = (6, 32)

zeros 0+2 ; 6+2 or 2 ; 8

d $y = f(x+2)$ → subtract 2 from x

local max : (4−2, 32) or (2, 32)

zeros : 0−2 ; 6−2 or −2 ; 4