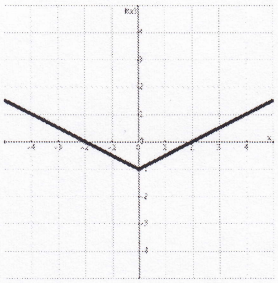
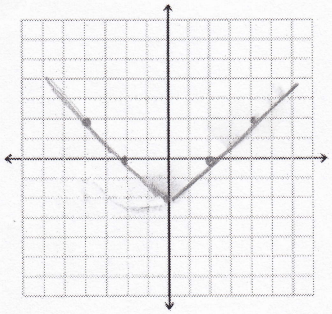
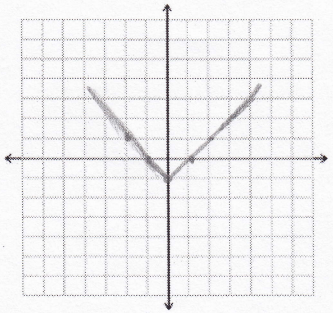
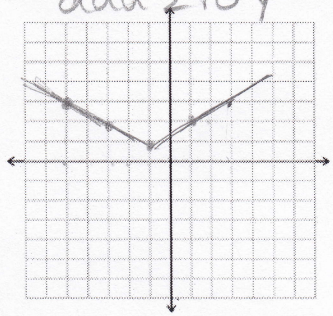
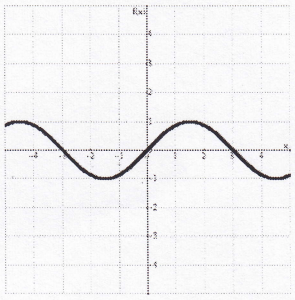
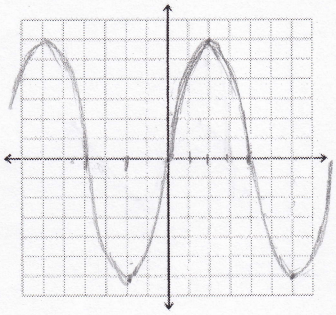
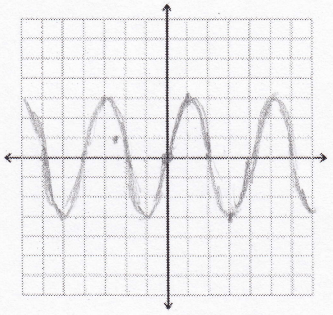
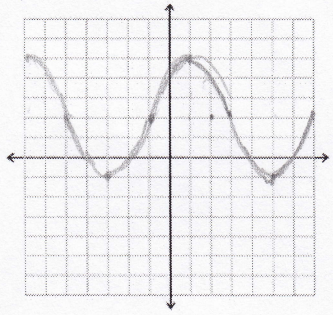
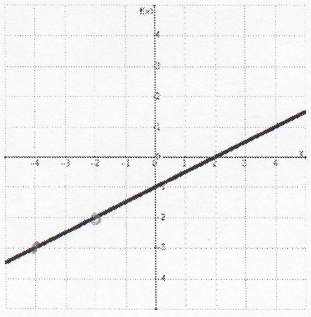
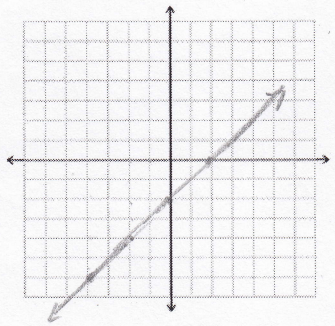
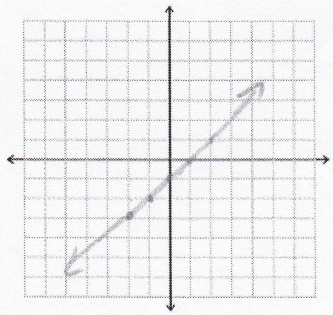
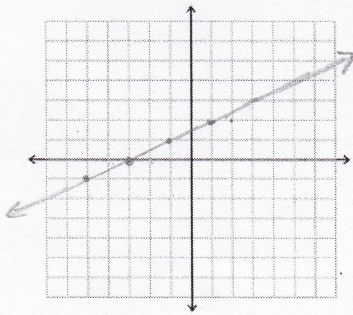
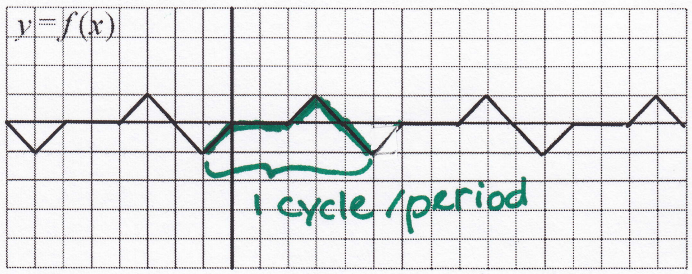
Worksheet 4.4A Name _____ Assignment # _____

PLUS textbook page 143 #1 – 5(odd); p. 142 CE # 1 - 4

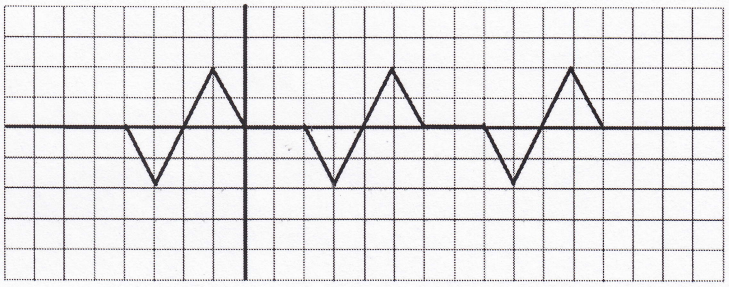
$y = f(x)$	$y = 2f(x)$ dbl y	$y = f(2x)$ $\frac{1}{2}$ x	$y = f(x+1)+2$
1. 			subtract 1 from x add 2 to y 
x: -4, -2, 0, 2, 4 y: 1, 0, -1, 0, 1	-4, -2, 0, 2, 4 2, 0, -2, 0, 2	-2, -1, 0, 1, 2 1, 0, -1, 0, 1	-5, -3, -1, 1, 3 3, 2, 1, 2, 3
2. 			
x: 0, 2, 4, 6, 8 y: 0, 3, 0, -3, 0	0, 2, 4, 6, 8 0, 6, 0, -6, 0	0, 1, 2, 3, 4 0, 3, 0, -3, 0	-1, 1, 3, 5, 7 2, 5, 2, -1, 2
3. 			
x: -4, -2, 0, 2, 4 y: -3, -2, -1, 0, 1	-4, -2, 0, 2, 4 -6, -4, -2, 0, 2	-2, -1, 0, 1, 2 -3, -2, -1, 0, 1	-5, -3, -1, 1, 3 -1, 6, 1, 2, 3

4. $f(x)$



x	-1	0	1	2	3	4	5
y	-1	0	0	0	1	0	-1

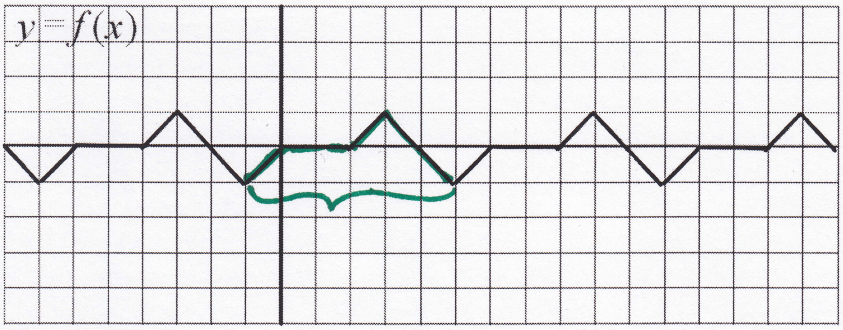
State the equation of the graph below in terms of $f(x)$



x	-1	0	1	2	3	4	5
y	2	0	0	0	-2	0	2

y multiplied by -2 → $y = -2f(x)$

1



Find:

a) period 6

b) amplitude 1

c) f(34)

$\frac{34}{6} = 5R4$

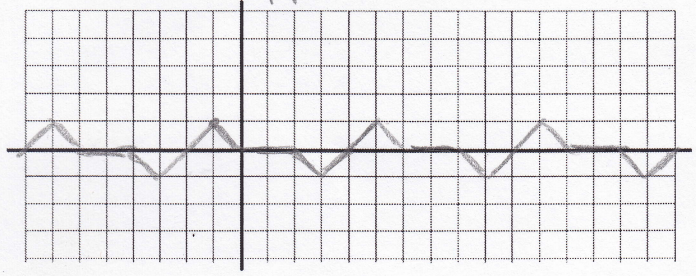
→ f(4) = 0

d) f(-49)

$\frac{-49}{6} = -8R1$

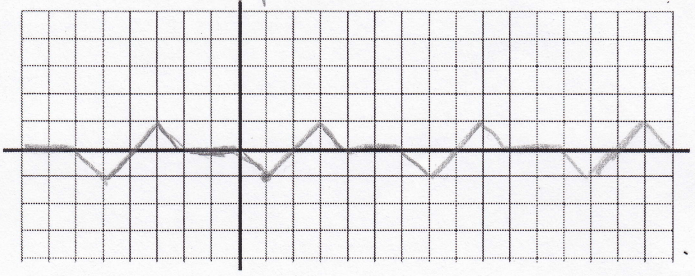
→ f(-1) = -1

2. $y = -f(x)$ opposite y



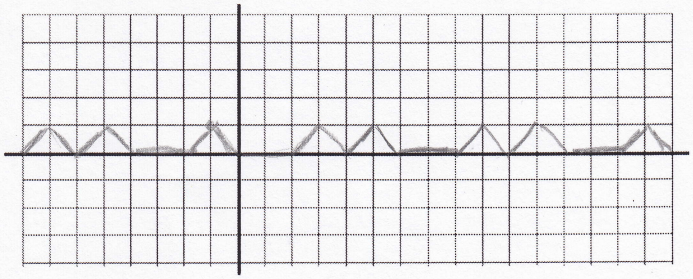
-1	0	1	2	3	4	5
1	0	0	0	-1	0	1

3) $y = f(-x)$ opposite x



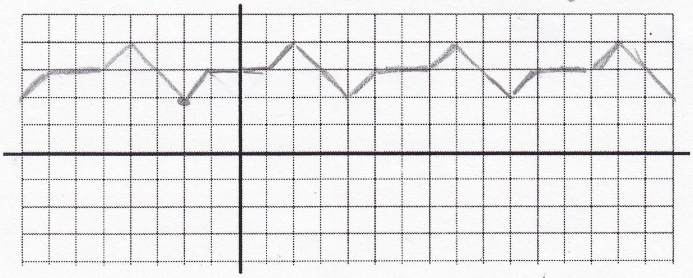
1	0	-1	-2	-3	-4	-5
-1	0	0	0	1	0	-1

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



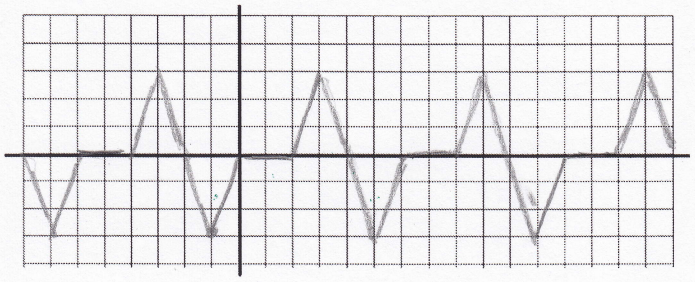
-1	0	1	2	3	4	5
1	0	0	0	1	0	1

5) $y - 3 = f(x+1)$ $y = f(x+1)+3$ $\begin{cases} x-1 \\ y+3 \end{cases}$



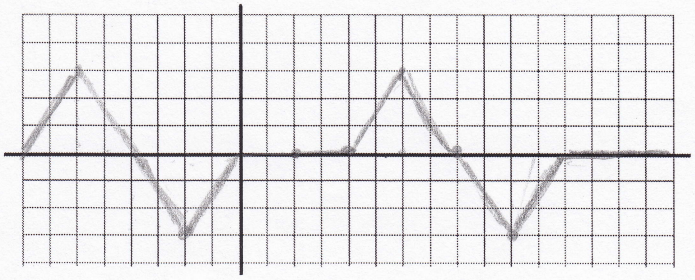
-2	-1	0	1	2	3	4
2	3	3	3	4	3	2

6) $y = 3f(x)$ y times 3



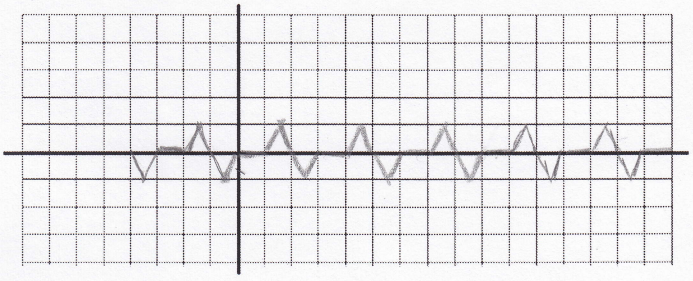
x	-1	0	1	2	3	4	5
y	-3	0	0	0	3	0	-3

7) $y = 3f(\frac{1}{2}x)$ y times 3, x times 2



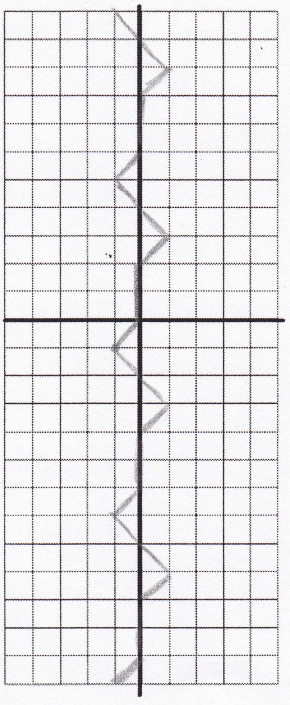
-2	0	2	4	6	8	10
-3	0	0	0	3	0	-3

8) $y = f(2x)$ half the x



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

x	y
-1	-1
0	0
0	1
0	2
1	3
0	4
-1	5



x and y switched.

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(10) $y = x^2 + 3x$

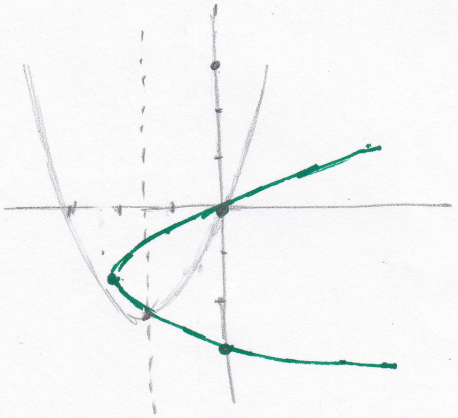
$= x(x+3)$

zeros: $0, -3$

AOS: $x = \frac{0+-3}{2} = -\frac{3}{2}$

$y = -\frac{3}{2}(-\frac{3}{2}+3) = -\frac{3}{2}\cdot\frac{3}{2} = -\frac{9}{4}$

$\Rightarrow (-\frac{3}{2}, -\frac{9}{4})$



x	y
0	0
-3	0
$-\frac{3}{2}$	$-\frac{9}{4}$

x	y
0	0
0	-3
$-\frac{9}{4}$	$-\frac{3}{2}$

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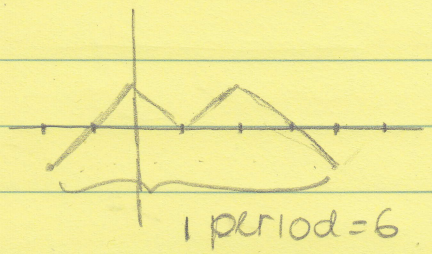
(1)



fundamental period = 6

Amplitude = $\frac{1--1}{2} = 1$

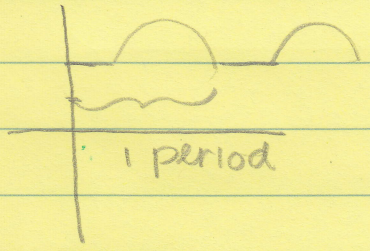
$f(1000)$ $\frac{1000}{6} = 166 R 4$

$f(1000) = f(4) = -1$

$f(-1000) = f(-4) = f(-4+6) = f(2) = 1$

every 6 the cycle repeats!

3



fundamental period = 3

Amplitude = $\frac{3-2}{2} = \frac{1}{2}$

$f(1000)$ $\frac{1000}{3} = 333 R 1$

$f(1000) = f(1) = 2$

$f(-1000) = f(-1) = 3$