

Pre-Calculus Math 12

1.1

page 12 #1-7

1. a) $y-5 = f(x)$
 $k=5, h=0$

← compare to $y-k = f(x-h)$

b) $y = f(x) - 4$
 $y+4 = f(x)$
 $y-4 = f(x)$
 $k=-4, h=0$

c) $y = f(x+1)$
 $y = f(x-(-1))$
 $k=0, h=-1$

d) $y+3 = f(x-7)$
 $y-3 = f(x-7)$
 $k=-3, h=7$

e) $y = f(x+2) + 4$
 $y-4 = f(x+2)$
 $y-4 = f(x-(-2))$
 $k=4, h=-2$

2. a) $g(x) = f(x) + 3$ $A' = (-4, 1), B' = (3, 4), C' = (-1, 4), D' = (1, 2), E' = (2, 2)$
up 3 ←

b) $h(x) = f(x-2)$ $A' = (-2, -2), B' = (-1, 1), C' = (1, 1), D' = (3, -1), E' = (4, -1)$
right 2 ←

c) $s(x) = f(x+4)$ $A' = (-8, -2), B' = (-7, 1), C' = (-5, 1), D' = (-3, -1), E' = (-2, -1)$
left 4 ←

d) $t(x) = f(x) - 2$ $A' = (-4, -4), B' = (-3, -1), C' = (-1, -1), D' = (1, -3), E' = (2, -3)$
down 2 ←

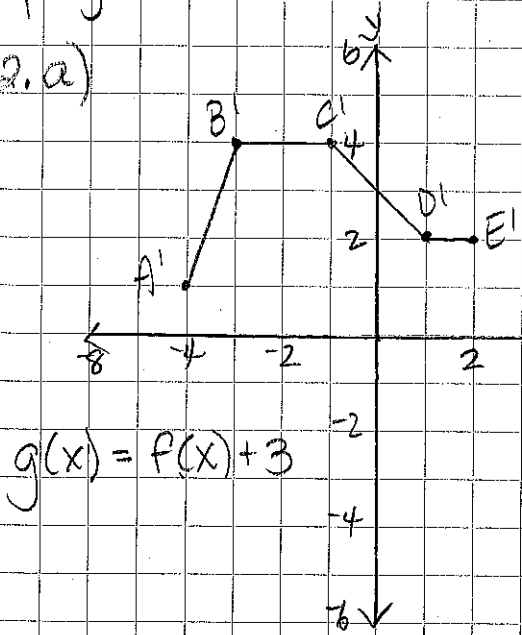
Graphs on next page

3. a) $y = f(x+10)$
left 10
 $(x, y) \rightarrow (x-10, y)$

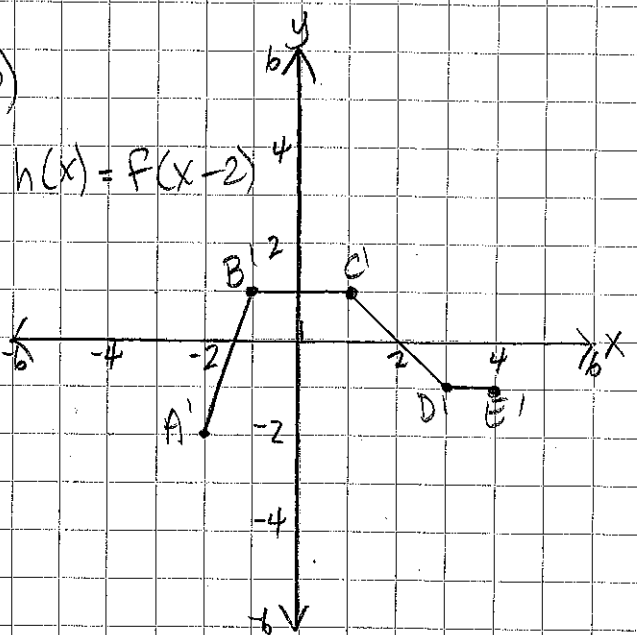
b) $y+6 = f(x)$
down 6
 $(x, y) \rightarrow (x, y-6)$

page 12 cont.

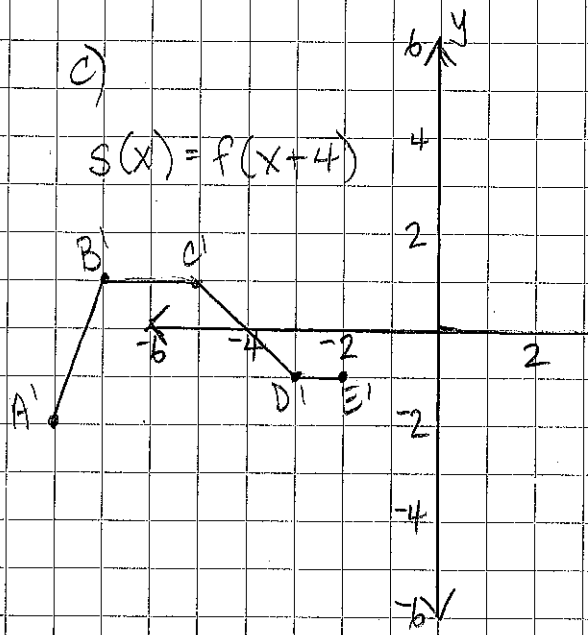
a.)



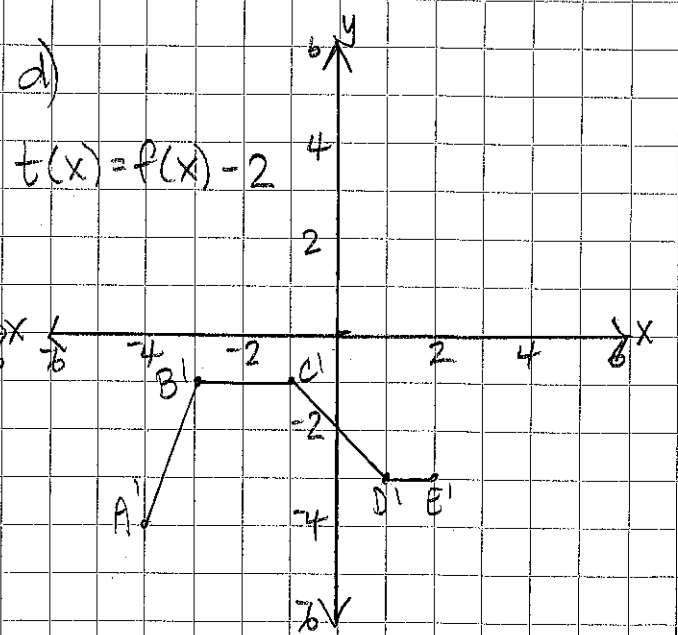
b.)



c.)



d.)



page 12 cont.

3. c) $y = f(x-7) + 4$
 up 4, right 7
 $(x, y) \rightarrow (x+7, y+4)$

d) $y-3 = f(x-1)$
 up 3, right 1
 $(x, y) \rightarrow (x+1, y+3)$

4. a) $r(x) = f(x+4) - 3$
 left 4, down 3
 $(x, y) \rightarrow (x-4, y-3)$

b) $s(x) = f(x-2) - 4$
 right 2, down 4
 $(x, y) \rightarrow (x+2, y-4)$

c) $t(x) = f(x-2) + 5$
 right 2, up 5
 $(x, y) \rightarrow (x+2, y+5)$

d) $v(x) = f(x+3) + 2$
 left 3, up 2
 $(x, y) \rightarrow (x-3, y+2)$

graphs on next page

5. a) $f(x) = \frac{1}{x}$, 5 left, 4 up
 $h = -5, k = 4$

$y-4 = f(x+5)$

b) $f(x) = x^2$, 8 right, 6 up
 $h = 8, k = 6$

$y-6 = f(x-8)$

c) $f(x) = |x|$, 10 right, 8 down
 $h = 10, k = -8$

$y+8 = f(x-10)$

d) $y = f(x)$, 7 left, 12 down
 $h = -7, k = -12$

$y+12 = f(x+7)$

$y = x^2$ has points

x	y
0	0
1	1
2	4
3	9
4	16

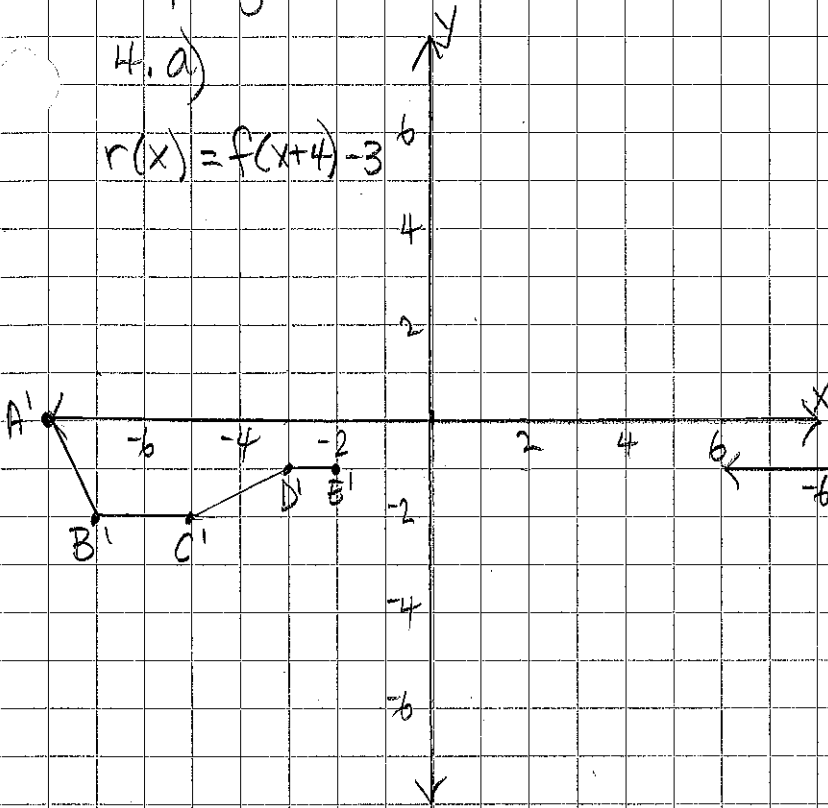
7. 5 is 1 right
 so the graph
 was translated
 1 unit right

6. 19 is 3 up so the
 graph was translated
 3 units up.

page 12 cont.

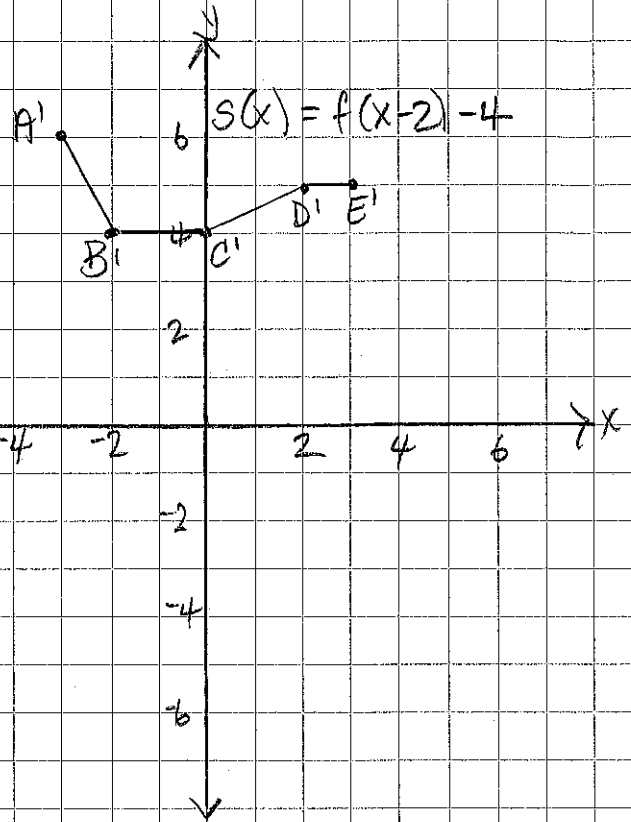
4. a)

$$r(x) = f(x+4) - 3$$

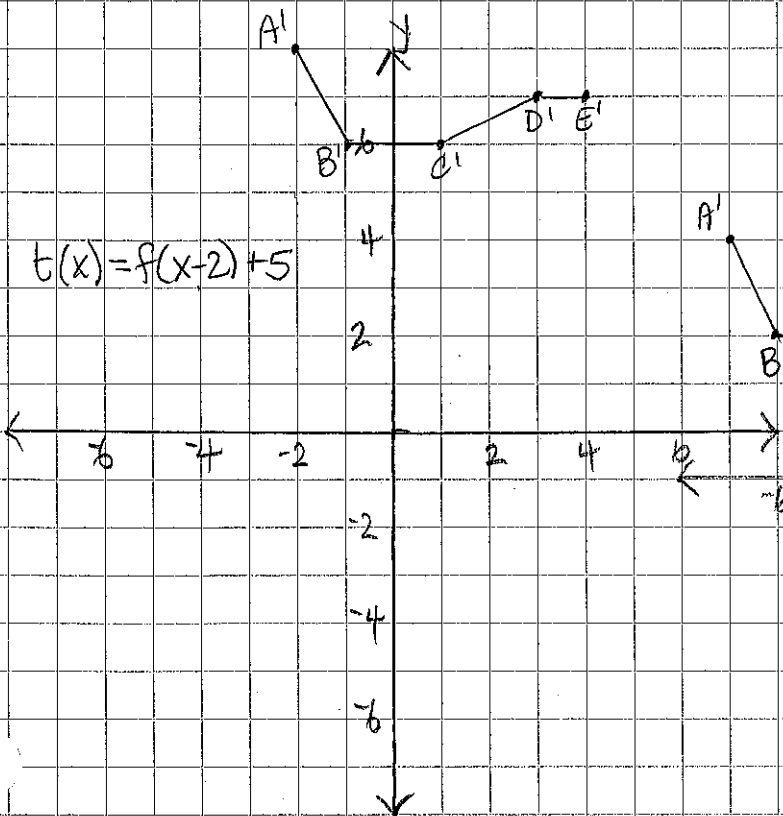


b)

$$s(x) = f(x-2) - 4$$



$$t(x) = f(x-2) + 5$$



$$v(x) = f(x+3) + 2$$

