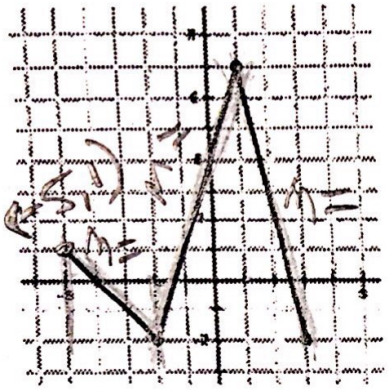
Classwork Review of Piecewise Functions

1.



$$f(x) = \begin{cases} -1(x+5)+1 & [-5,-2] \\ 3(x+2)-2 & (-2,1] \\ -4(x-1)+7 & (1,3] \end{cases}$$

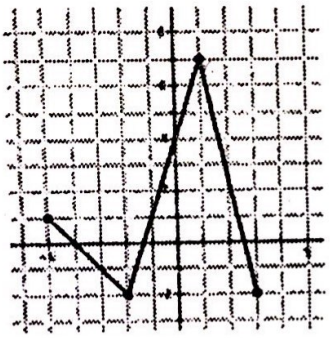
(function here, domain here)

Domain: $[-5,3]$

Increasing: $(-2,1)$

Range: $[-2,7]$

Decreasing: $(-5,-2)$ $(1,3)$



a. $f(-3) =$ -1

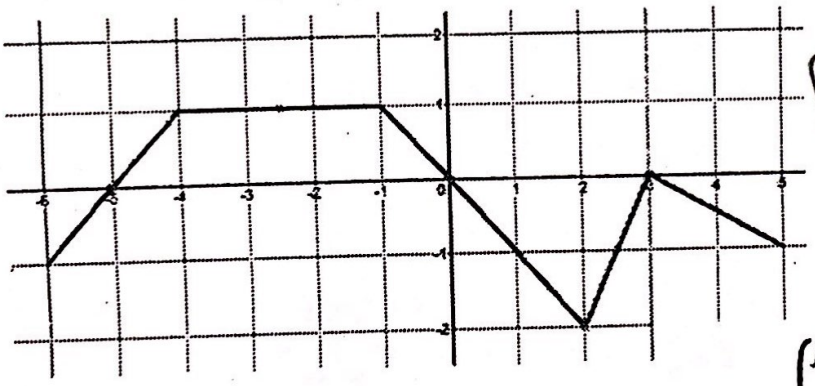
b. $f(x) = 7$ $x=1$

c. $f(3) + 2f(0)$

$-2+2(4)$

6

2.



Domain: $[-6,5]$

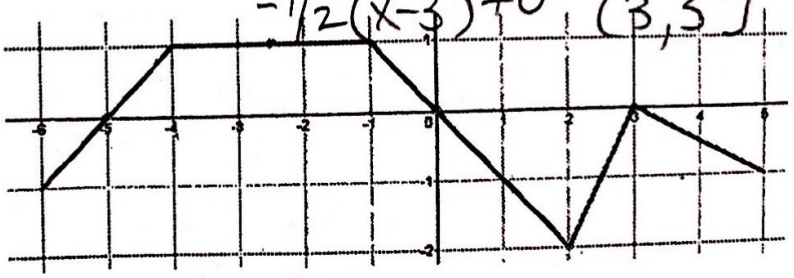
Increasing: $(-6,-4) \cup (2,3)$

Range: $[-2,1]$

Decreasing: $(-1,2) \cup (3,5)$

$$f(x) = \begin{cases} 1(x+6)-1 & [-6,-4] \\ 1 & (-4,-1] \\ -1(x+1)+1 & (-1,2] \\ 2(x-2)-2 & (2,3] \\ -1/2(x-3)+0 & (3,5] \end{cases}$$

(function here, domain here)



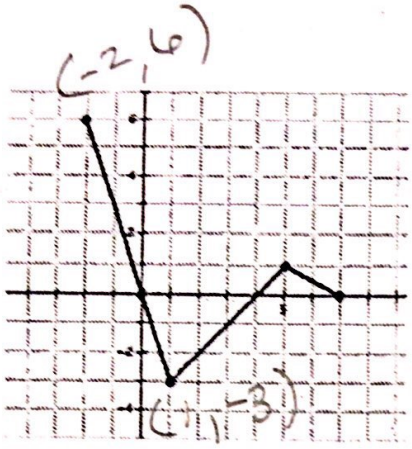
a. $f(-4) =$ 1

b. $f(x) = -2$ $2=x$

c. $f(1) + f(2)$

$-1 + -2 = -3$

3.



$$f(x) = \begin{cases} -3(x+2)+6 & ; [-2, 1] \\ 1(x-1)-3 & ; (1, 5] \\ -\frac{1}{2}(x-5)+1 & ; (5, 7] \end{cases}$$

(function here ; domain here)

Domain: $[-2, 7]$

Increasing: $(1, 5)$

Range: $[-3, 6]$

Decreasing: $(-2, 1) \cup (5, 7)$

a. $f(1) =$ -3

b. $f(x) = 3$ $x = -1$

c. $f(-2) + 4f(3)$

$6 + 4(-1)$

$= 2$

Evaluate the piecewise function for the given values of x for #4-5.

4. $f(x) = \begin{cases} x+5 & \text{if } x < -2 \\ -4 & \text{if } x \geq -2 \end{cases}$

$f(3) =$ -4

$f(-4) =$ $-4 + 5 = 1$

$f(-2) =$ -4

5. $f(x) = \begin{cases} 2x+1 & x \geq 1 \\ \frac{1}{2}x - 3 & x < 1 \end{cases}$

$f(-2) =$ $\frac{1}{2}(-2) - 3 = -1 - 3 = -4$

$f(6) =$ $2(6) + 1 = 13$

$3f(1) - 2f(2)$

$3(3) - 2(5) = 9 - 10 = -1$