Secondary Math 2 Honors
Piecewise Functions Notes (4-3)

Name: NOTES!
Period: _____

Evaluate the function for the given value of x.

$$f(x) = \begin{cases} 3x - 7, & \text{if } x \le 2 \\ 6 - 2x, & \text{if } x > 2 \end{cases} \qquad h(x) = \begin{cases} \frac{1}{2}x - 10, & \text{if } x \le 6 \\ -x - 1, & \text{if } x > 6 \end{cases}$$

*look @ the domain to decide which function to use!

1. $f(-3) = 3(-3) - 7 = -9 - 7 = \boxed{-16}$

2. $f(2) = 3(2) - 7 = 6 - 7 = \boxed{-1}$

3. $f(4) = 6 - 2(4) = 6 - 8 = \boxed{-2}$

4. $h(8) = -(8) - 1 = \boxed{-9}$

5. $h(6) = \frac{1}{2}(6) - 10 = 3 - 10 = \boxed{-7}$

6. $h(-5) = \frac{1}{2}(-5) - 10 = -\frac{5}{2} - 10 = -\frac{5}{2} - \frac{20}{2} = \boxed{\frac{-25}{2}}$

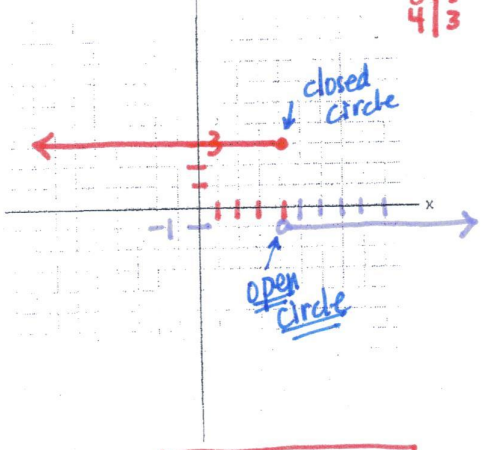
Graph the function.

7. $f(x) = \begin{cases} 3, & \text{if } x \le 4 \\ -1, & \text{if } x > 4 \end{cases}$

x	y
0	3
1	3
2	3
3	3
4	3

x	y
4	-1
5	-1
6	-1
7	-1

*open circle

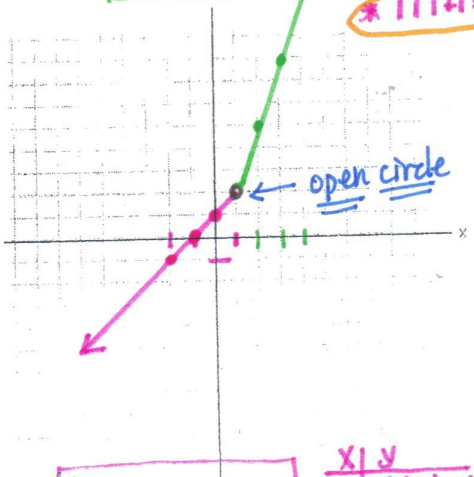


8. $f(x) = \begin{cases} x + 1, & \text{if } x < 1 \\ 3x - 1, & \text{if } x > 1 \end{cases}$

x	y
-2	-2+1=-1
-1	-1+1=0
0	0+1=1
*1	1+1=2

these overlap but do NOT = it

x	y
*1	3(1)-1=2
2	3(2)-1=5
3	3(3)-1=8
4	3(4)-1=11

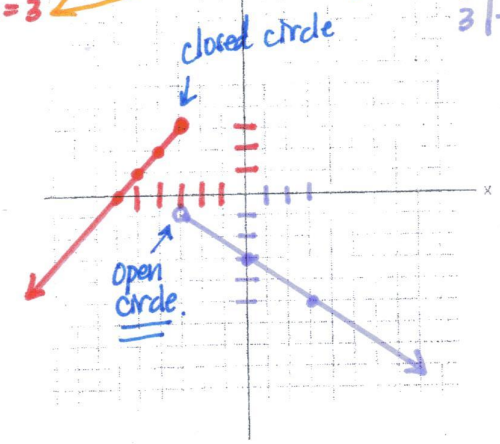


9. $f(x) = \begin{cases} x + 6, & \text{if } x \le -3 \\ -\frac{2}{3}x - 3, & \text{if } x > -3 \end{cases}$

x	y
-5	-5+6=1
-4	-4+6=2
-3	-3+6=3

these do NOT overlap

x	y
*-3	-2/3(-3)-3=-1
0	-2/3(0)-3=-3
3	-2/3(3)-3=-5



10. $h(x) = \begin{cases} \frac{1}{2}x + 4, & \text{if } x < 2 \\ -2x + 9, & \text{if } x \ge 2 \end{cases}$

x	y
-2	1/2(-2)+4=3
0	1/2(0)+4=4
*2	1/2(2)+4=5

these overlap!

x	y
2	-2(2)+9=5
3	-2(3)+9=3
4	-2(4)+9=1