Algebra 2/Trig H
Sec. 2.7 Piecewise Functions

NOTES

Date 9/19

Piecewise functions are represented by a combination of equations, each corresponding to a part of the domain.

Ex. 1: Evaluate the function $g(x) = \begin{cases} 3x + 2, & \text{if } x < 5 \\ -2x, & \text{if } x \geq 5 \end{cases}$ for the given value of x.

a) $g(5) = -2(5) = -10$ (x)

b) $g(-2) = 3(-2) + 2 = -4$ (x)

Ex. 2: Graph each function.

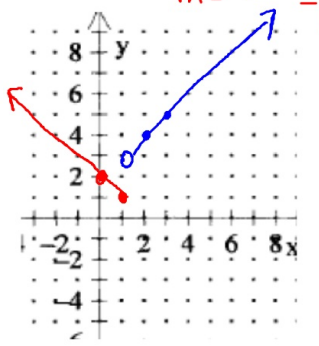
a) $f(x) = \begin{cases} x + 2, & \text{if } x > 1 \\ -x + 2, & \text{if } x \leq 1 \end{cases}$ (y)

endpt (1, 3)

(1, 1)

m = 1 (1)

m = -1 ($\frac{-1}{1}$)



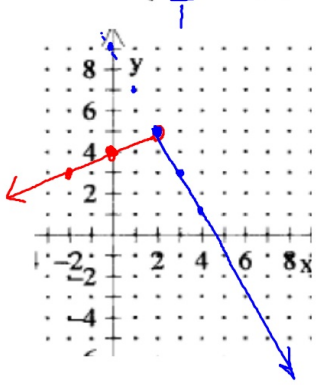
b) $f(x) = \begin{cases} \frac{1}{2}x + 4, & \text{if } x < 2 \\ -2x + 9, & \text{if } x \geq 2 \end{cases}$ (y)

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

(2, 5)

(2, 5)

1



Ex. 3: An on-line store charges its customers \$6 shipping on purchases up to \$50, \$8 on purchases over \$50 up to \$100, and \$10 on purchases over \$100 up to \$200. The shipping cost C, (in dollars), based on the total amount of purchases x, is given by the function $C(x)$.

Graph the function and give the domain and range.

$$C(x) = \begin{cases} 6, & \text{if } 0 < x \le 50 \\ 8, & \text{if } 50 < x \le 100 \\ 10, & \text{if } 100 < x \le 200 \end{cases}$$

"step function"

D: $0 < x \le 200$

R: 6, 8, 10