Analysis of Functions
AROC

x	f(x)
-7	-1
-2	0
0	2
2	0
3	3
5	-1
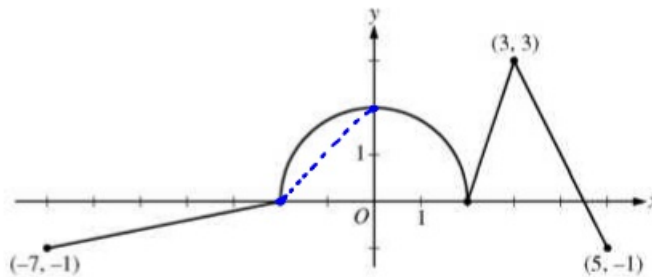
Points: $(3, 3)$, $(-7, -1)$, $(5, -1)$

a) Find the average rate of change between x = -7 and x = -2

$$x_1 \ y_1 \qquad x_2 \ y_2$$
$$(-7, -1) \qquad (-2, 0)$$

$$ARC = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\frac{-1-0}{-7-(-2)} = \frac{-1}{-5} \qquad \frac{0-(-1)}{-2-(-7)} = \frac{1}{5}$$

b) Find the average rate of change between x = -2 and x = 0

$$(-2, 0) \quad (0, 2)$$

$$\frac{2-0}{0-(-2)} = \frac{2}{2} = 1$$

Graph: $a(t)$ (ft/sec²) with points $(2, 15)$, $(18, 15)$, $(10, -15)$, $(14, -15)$, t (seconds)
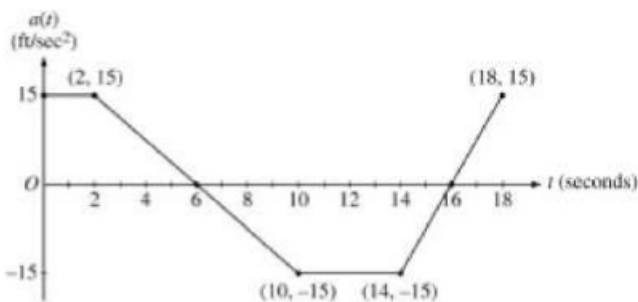
t	a(t)
0	15
2	15
6	0
10	-15
14	-15
16	0
18	15

a) Find the average rate of change between x = 0 and x = 10

$$(0, 15) \quad (10, -15)$$

$$ARC = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-15-15}{10-0}$$

$$= \frac{-30}{10} = -3$$

b) Find the average rate of change between x = 14 and x = 18

$$(14, -15) \quad (18, 15)$$

$$\frac{15-(-15)}{18-14} = \frac{30}{4} = \frac{15}{2}$$