Notes 2-5

Sec 1 H | **Positive, Negative, & Intercepts** | **Unit 2**

Vocabulary:

Positive: ABOVE the x-axis
use x-values to describe the interval

Negative: BELOW the x-axis

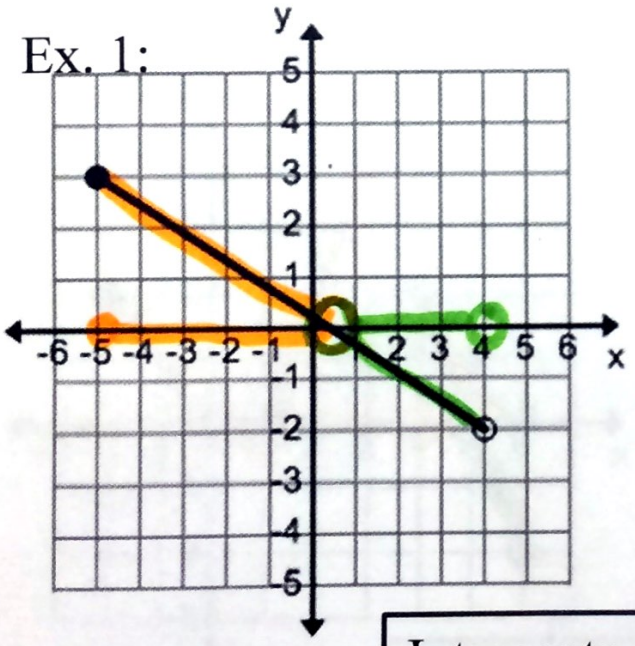
Intercepts

x-intercepts: points where the graph hits the x-axis
(10,0)
$f(10)=0$

y-intercepts: points where the graph hits the y-axis
(0,8)
$f(0)=8$

Identify the indicated characteristics for each graph using set builder and interval notation.

Ex. 1:



Positive

Set Builder: $-5 \leq x < 0.5$

Interval: $[-5, 0.5)$

Negative

Set Builder: $0.5 < x < 4$

Interval: $(0.5, 4)$

Intercepts

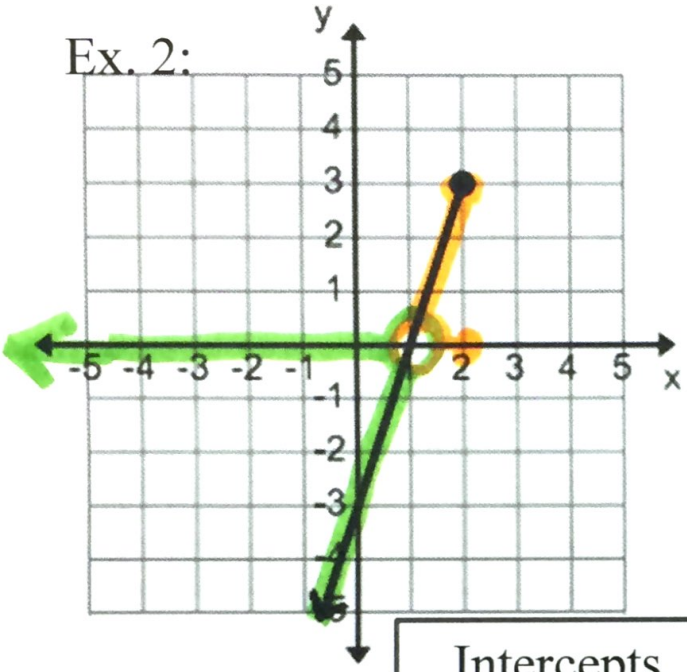
x-intercepts: $f(0.5)=0$ *y*-intercepts: $f(0)=0.2$

Notes 2-5

Sec 1 H **Positive, Negative, & Intercepts** **Unit 2**

Identify the indicated characteristics for each graph using set builder and interval notation.

Ex. 2:



Positive

Set Builder: $1 < x \leq 2$

Interval: $[1, 2]$

Negative

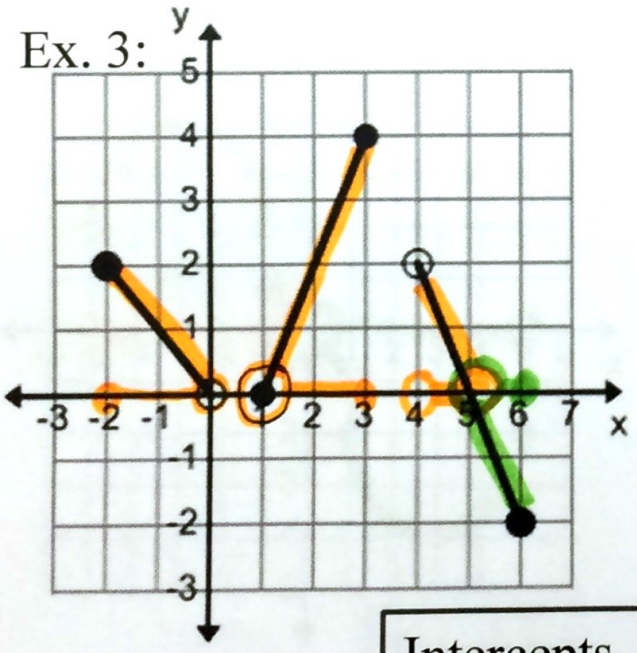
Set Builder: $x < 1$

Interval: $(-\infty, 1)$

Intercepts

x-intercepts: $f(1) = 0$ y-intercepts: $f(0) = -3$

Ex. 3:



Positive

Set Builder: $-2 \leq x < 0$ or $1 < x \leq 3$ or $4 < x < 5$

Interval: $[-2, 0)$ $(1, 3]$ $(4, 5)$

Negative

Set Builder: $5 < x \leq 6$

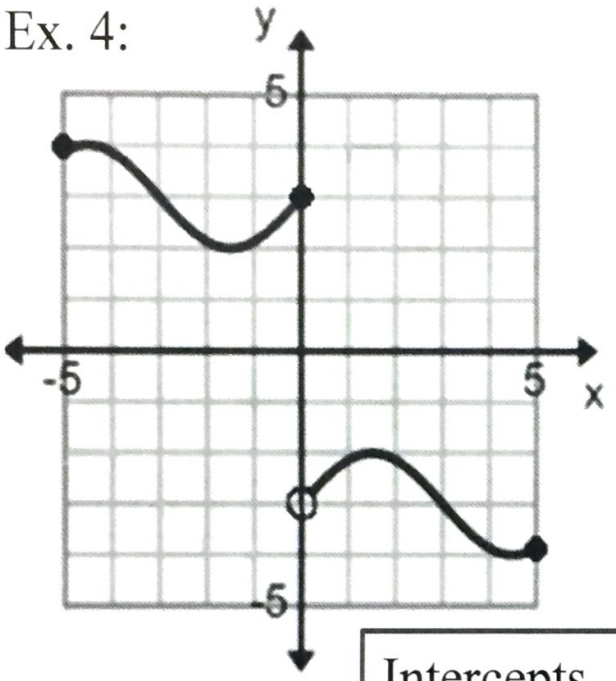
Interval: $(5, 6]$

Intercepts $f(1) = 0$

x-intercepts: $f(5) = 0$ y-intercepts: None

Identify the indicated characteristics for each graph using set builder and interval notation.

Ex. 4:



Positive

Set Builder: $-5 \leq x \leq 0$

Interval: $[-5, 0]$

Negative

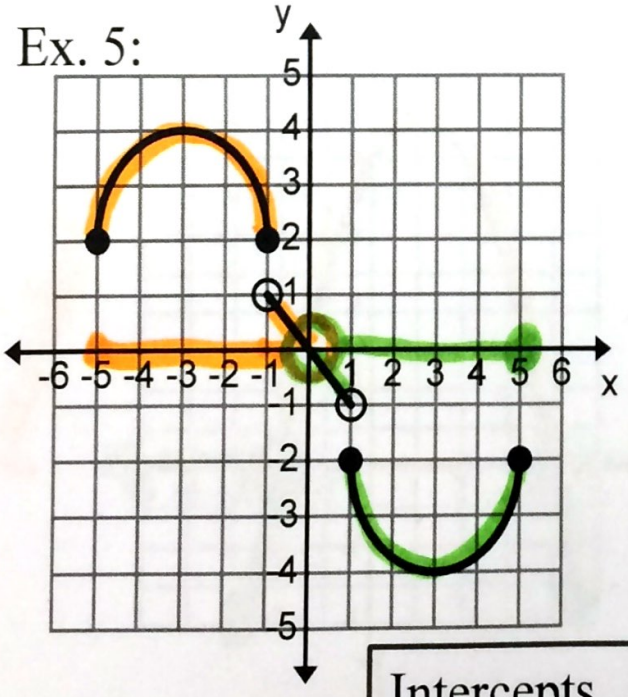
Set Builder: $0 < x \leq 5$

Interval: $(0, 5]$

Intercepts

x-intercepts: None *y*-intercepts: $f(0) = 3$

Ex. 5:



Positive

Set Builder: $-5 \leq x < 0$

Interval: $[-5, 0)$

Negative

Set Builder: $0 < x \leq 5$

Interval: $(0, 5]$

Intercepts

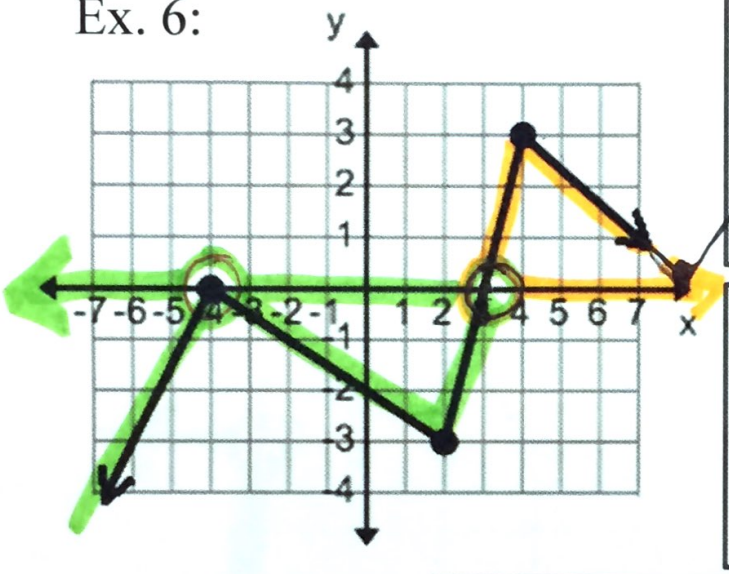
x-intercepts: $f(0) = 0$ *y*-intercepts: $f(0) = 0$

Notes 2-5

Sec 1 H **Positive, Negative, & Intercepts** **Unit 2**

Identify the indicated characteristics for each graph using set builder and interval notation.

Ex. 6:



Positive

Set Builder: $x > 3$

Interval: $(3, \infty)$

Negative

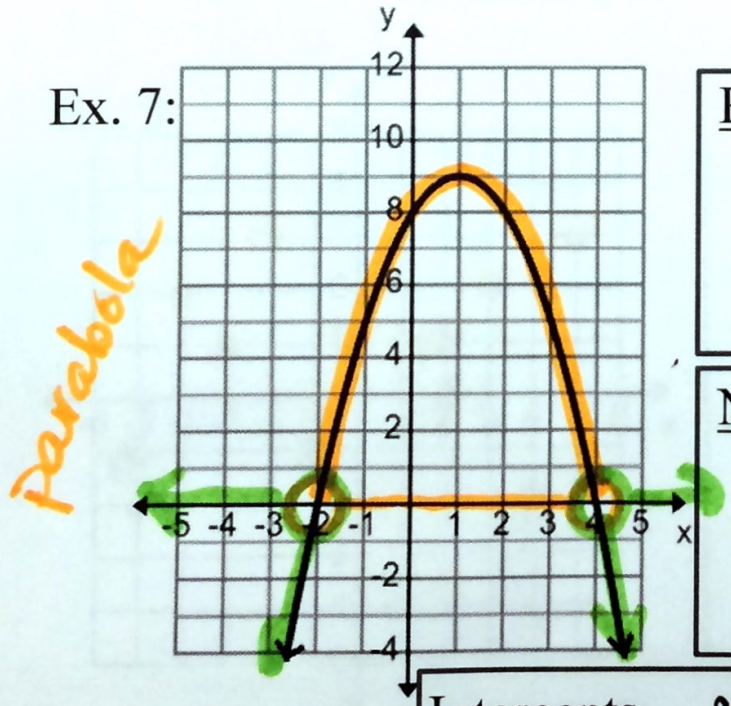
Set Builder: $x < -4$ or $-4 < x < 3$

Interval: $(-\infty, -4)$ $(-4, 3)$

Intercepts $f(-4) = 0$

x-intercepts: $f(3) = 0$ y-intercepts: $f(0) = -2$

Ex. 7:



Positive

Set Builder: $-2 < x < 4$

Interval: $(-2, 4)$

Negative

Set Builder: $x < -2$ or $x > 4$

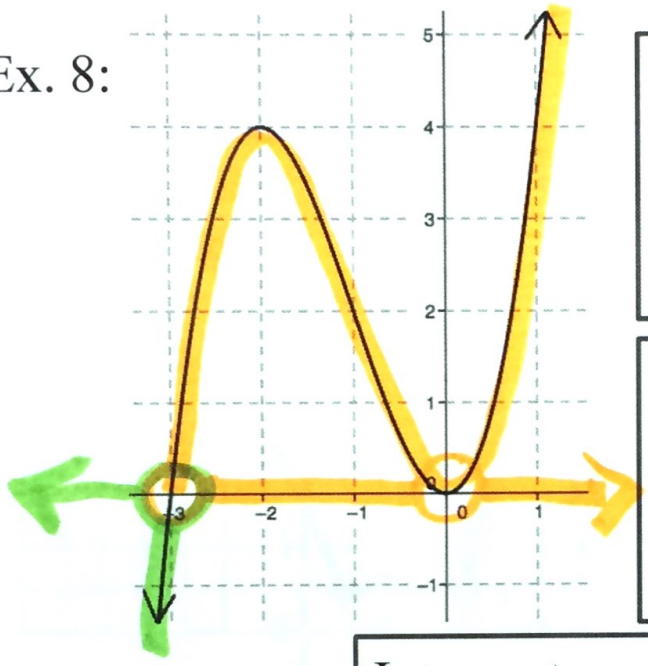
Interval: $(-\infty, -2)$ $(4, \infty)$

Intercepts $f(-2) = 0$

x-intercepts: $f(4) = 0$ y-intercepts: $f(0) = 8$

Identify the indicated characteristics for each graph using set builder and interval notation.

Ex. 8:



Positive

Set Builder: $-3 < x < 0$ $x > 0$

Interval: $(-3, 0)$ $(0, \infty)$

Negative

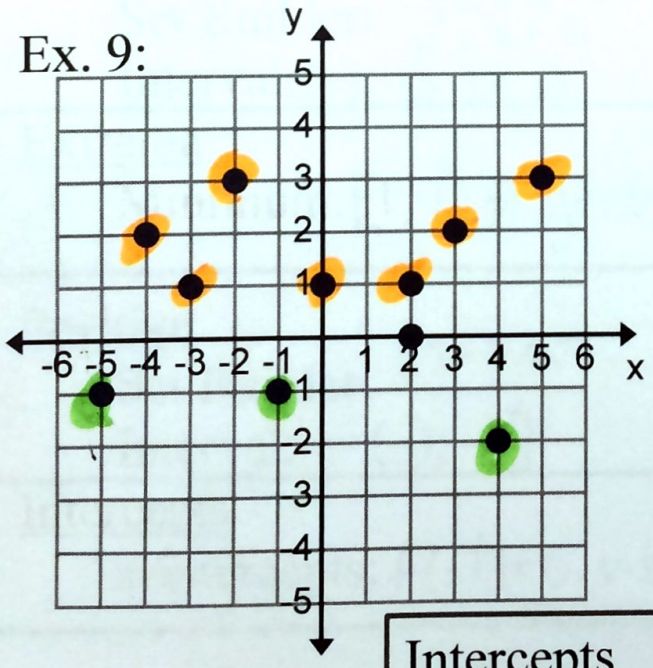
Set Builder: $x < -3$

Interval: $(-\infty, -3)$

Intercepts

x-intercepts: $f(-3) = 0$ $f(0) = 0$ *y*-intercepts $f(0) = 0$

Ex. 9:



Positive

Set Builder: $\{-4, -3, -2, 0, 2, 3, 5\}$

Interval: ~~Interval:~~

Negative

Set Builder: $\{-5, -1, 4\}$

Interval: ~~Interval:~~

Intercepts

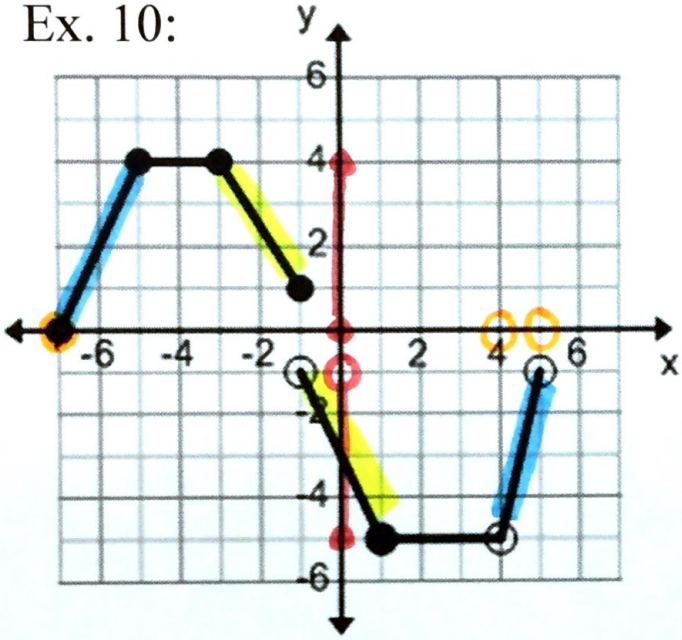
x-intercepts: $f(2) = 0$ *y*-intercepts: $f(0) = 1$

Notes 2-5

Sec 1 H **Positive, Negative, & Intercepts** **Unit 2**

Identify the indicated characteristics for each graph using set builder and interval notation.

Ex. 10:



Domain $-7 \leq x < 4$ $4 < x < 5$ Set Builder: Interval: $[-7,4)$ $(4,5)$
Range $-5 \leq y < -1$ $0 \leq y \leq 4$ Set Builder: Interval: $[-5,-1)$ $[0,4]$
Continuity Non-Cont.

Increasing $-7 < x < -5$ $4 < x < 5$ Set Builder: Interval: $(-7,-5)$ $(4,5)$	Decreasing $-3 < x < -1$ $-1 < x < 1$ Set Builder: Interval: $(-3,-1)$ $(-1,1)$
Extrema Minimum: $[1,4)$ @ $y=-5$ Maximum: $[-5,-3]$ @ $y=4$	
Positive $-7 < x \leq -1$ Set Builder: Interval: $(-7,-1]$	Negative $-1 < x < 5$ Set Builder: Interval: $(-1,5)$
Intercepts x-intercepts: $f(-7)=0$ y-intercepts: $f(0)=-3$	