Graphing Linear Piecewise Functions

*See printout.

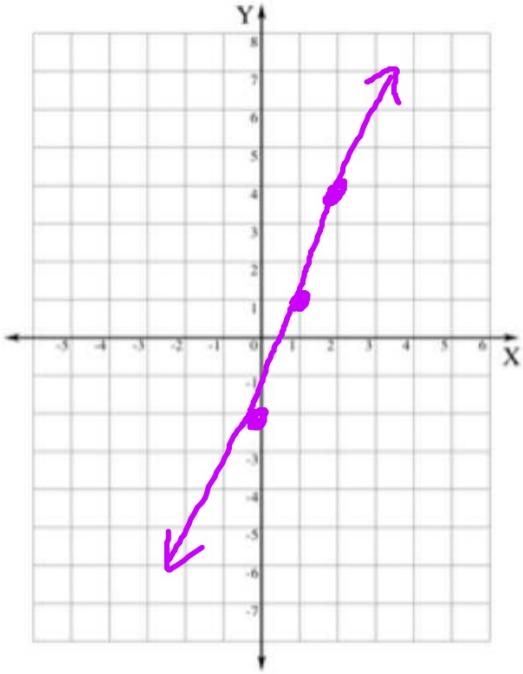
REVIEW

ex: Graph. Then state the domain (set) and range.

a) $f(x) = 3x - 2$

y-int: -2

m : $\frac{3}{1}$

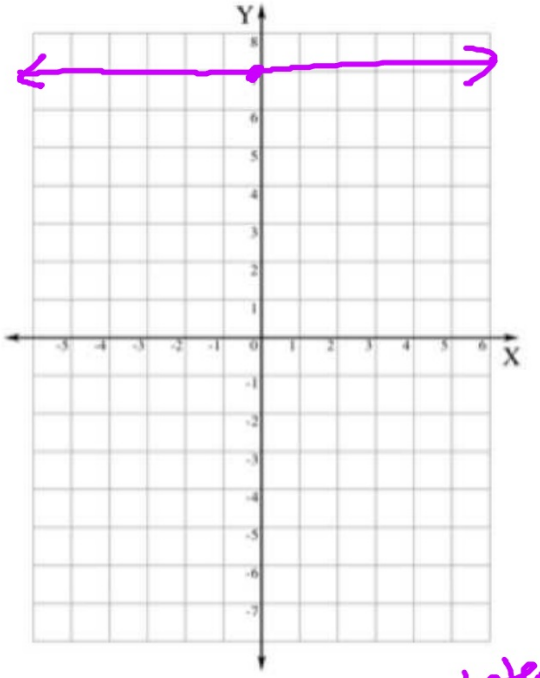


Domain:	Range:
$\{x \mid x \in R\}$	$\{y \mid y \in R\}$

REVIEW

ex: Graph. Then state the domain and range.

b) $f(x) = 7$



$(-\infty, \infty)$

Domain:	Range:
$\{x \mid x \in R\}$	$\{y \mid y = 7\}$

Interval

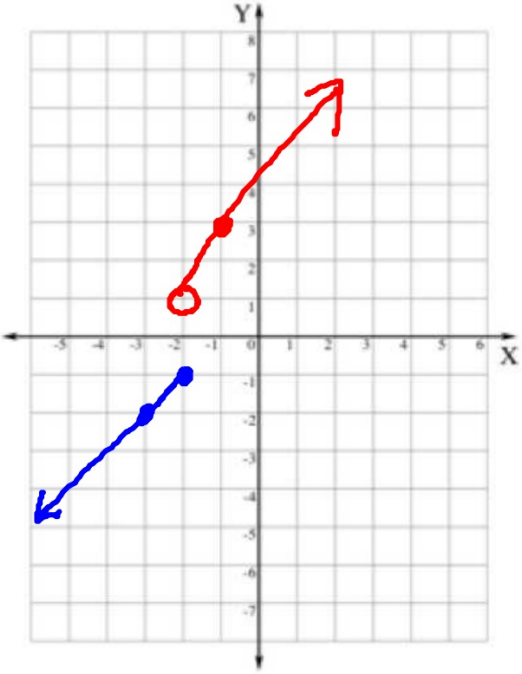
$[7]$

ex: Graph. Then state the domain and range.

a) $f(x) = \begin{cases} x+1, & x \le -2 \\ 2x+5, & x > -2 \end{cases}$

x	$\boxed{x+1}$
-2	-1
-3	-2

x	$\boxed{2x+5}$
-2	1
-1	3



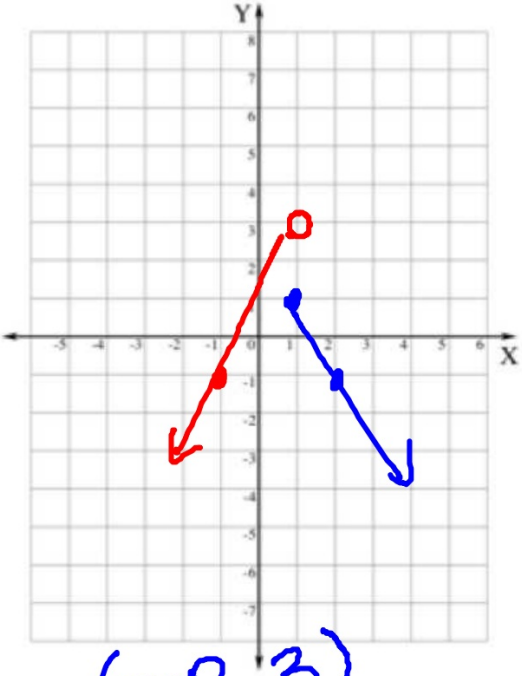
Domain:	Range:
$\{x \mid x \in R\}$	$\{y \mid y \le -1 \text{ or } y > 1\}$

ex: Graph. Then state the domain and range.

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

x	$2x+1$
1	3
-1	-1

x	$-2x+3$
1	1
2	-1



Domain:	Range:
$(-\infty, \infty)$ $\{x \mid x \in R\}$	$(-\infty, 3)$ $\{y \mid y < 3\}$

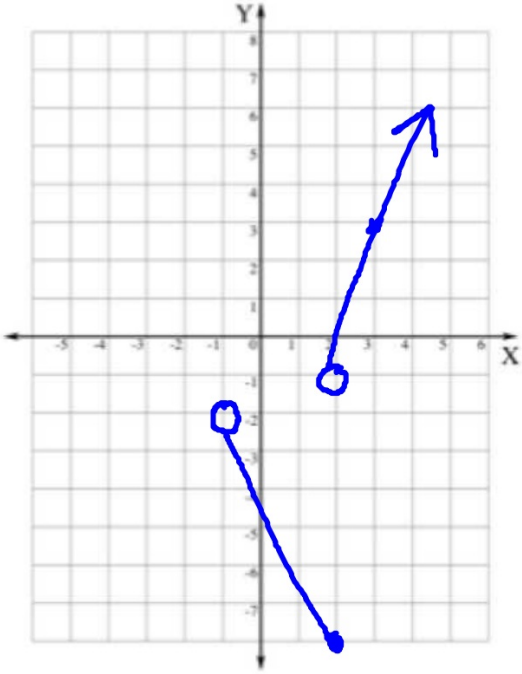
ex: Graph. Then state the domain and range.

c)

$$f(x)=\begin{cases}-2x-4, & -1<x\le 2\\ 4x-9, & x>2\end{cases}$$

x	$-2x-4$	
2	-8	•
-1	-2	o

x	$4x-9$	
2	-1	o
3	3	•



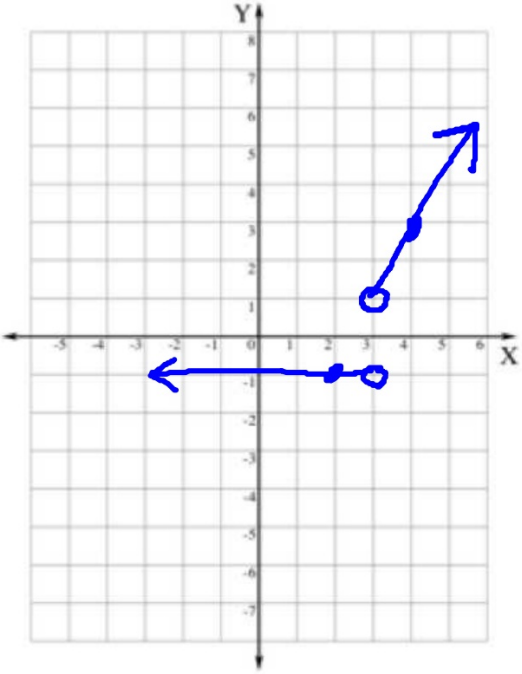
Domain:	Range:
$\{x \mid x>-1\}$	$\{y \mid -8\le y<-2 \text{ or } y>-1\}$

ex: Graph. Then state the domain and range.

d) $f(x) = \begin{cases} -1, & x < 3 \\ 2x - 5, & x > 3 \end{cases}$

x	-1
3	-1 o
2	-1 •

x	$2x-5$
3	1 o
4	3 •



Domain:	Range:
$\{x \mid x \neq 3\}$	$\{y \mid y = -1 \text{ or } y > 1\}$

4.) $h(2) - m(2)$

$(3(2)^2 - 7(2) + 1) - (3(2) - 8)$

$(3(4) - 7(2) + 1) - (-2)$

$(12 - 14 + 1)$

$(-1) - (-2)$

$-1 + 2 = 1$

$5\sqrt{16}$

$5 \cdot 4$

20

8.) $5\left(-\frac{2}{5}x+3\right)-\left(3x^2-7x+1\right)$

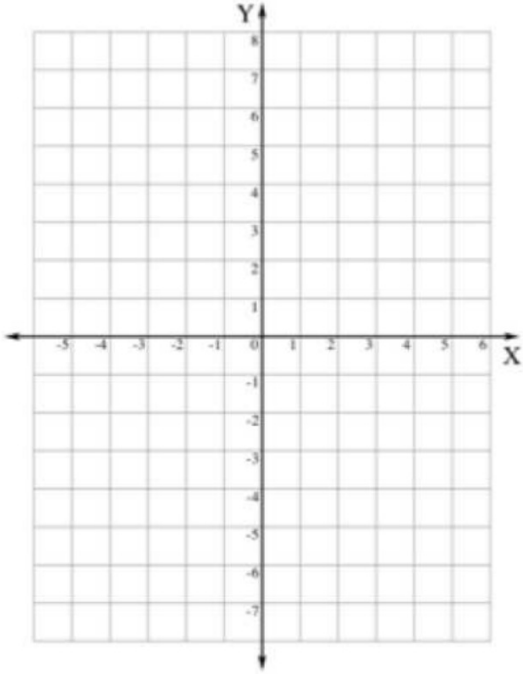
$-\underline{2x}+\underline{\underline{15}}-3x^2+\underline{7x}-\underline{\underline{1}}$

$-3x^2+5x+14$

ex: Graph. Then state the domain and range.

e)

$$f(x)=\begin{cases} x-1, & x \le -2 \\ 2x-1, & -2 < x \le 4 \\ -3x+8, & x > 4 \end{cases}$$

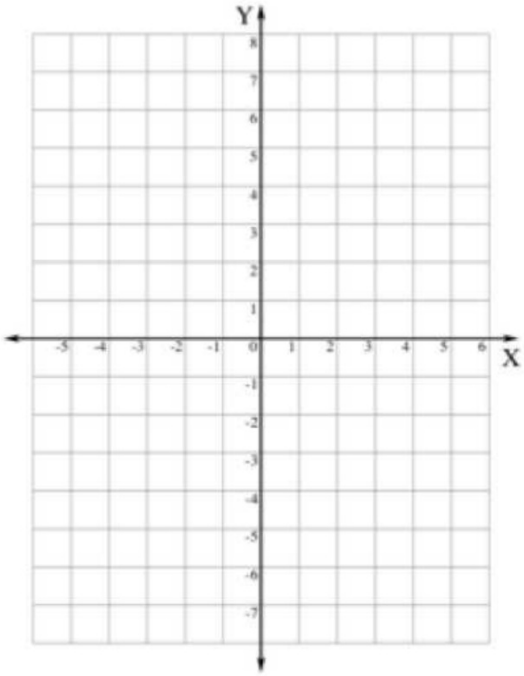


Domain:	Range:

ex: Graph. Then state the domain and range.

f)

$$f(x)=\begin{cases}3x-4, & x<0\\ 5x-2, & x=0\\ x+1, & x>0\end{cases}$$



Domain:	Range:

REVIEW

ex: Simplify.

$$6 \div 2(1+2)$$

REVIEW

ex: Evaluate.

$$f\left(x\right) = -x^2 - 2x - 4; \quad f\left(-3\right)$$

REVIEW

ex: Solve. Express the answer in interval notation.

$$\frac{2}{3}x + 5 \leq 7$$