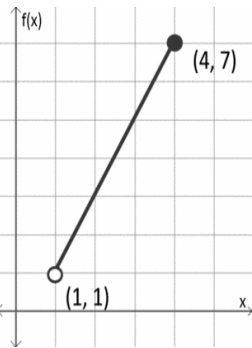


## Unit 3 – Absolute Value and Piecewise Functions

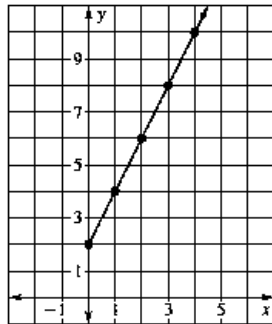
### Restricted Domain

#### Writing



Line:

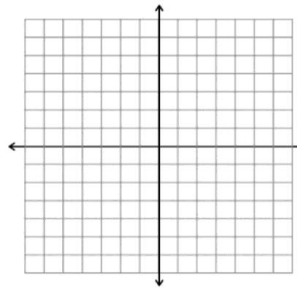
Domain:



Line:

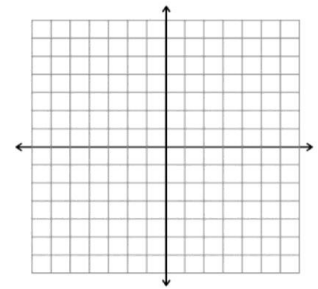
Domain:

#### Graphing



Line:  $y = x - 4$

Domain:  $x > -1$

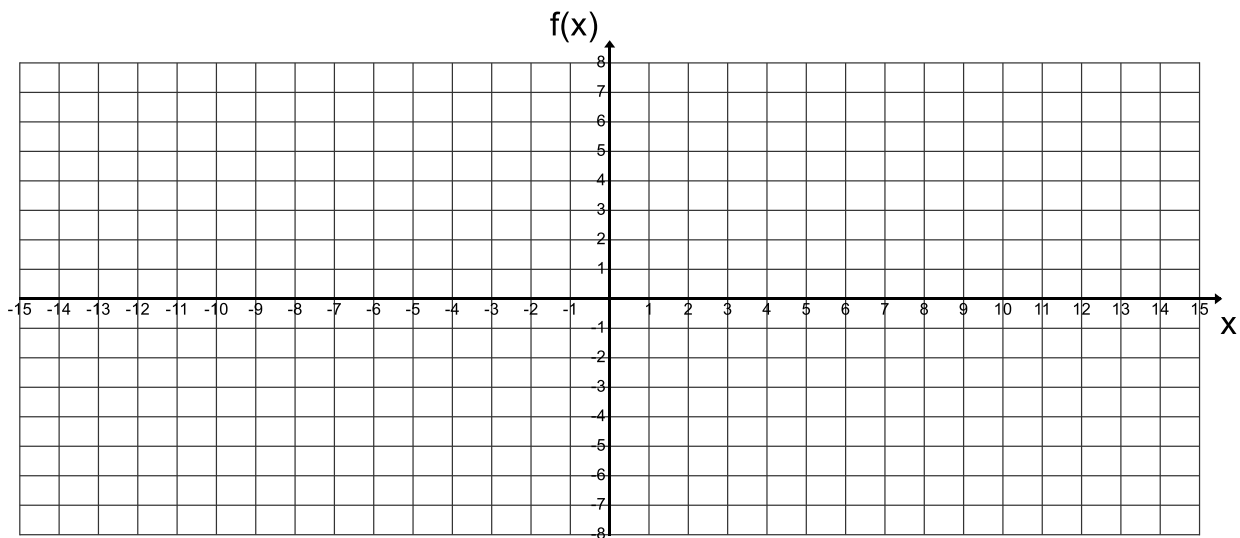


Line:  $y = \frac{1}{2}x + 3$

Domain:  $-3 < x \leq 4$

### Piecewise Functions

$$f(x) = \begin{cases} \frac{2}{3}(x - 6) - 2, & x < 3 \\ -x + 6, & 3 \leq x < 10 \end{cases}$$



Domain:

Increasing:

Positive:

x-int:

Range:

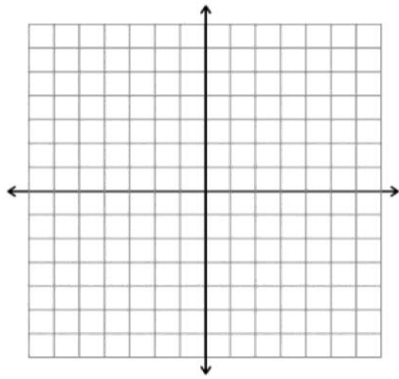
Decreasing:

Negative:

y-int:

## Parent Absolute Value Graph

x	$y =  x $
-5	
-3	
-1	
0	
1	
3	
5	



Absolute value  $|x|$  means...

Write  $y = |x|$  as a piecewise function:

Absolute Value with Different Slopes		Absolute Value with Vertical Translations/Shifts	
$y = - x $	$y = \frac{3}{2} x $	$y =  x  - 4$	$y =  x  + 2$

### Absolute Value with Both Transformations

$y = - x  + 2$	$y = \frac{1}{2} x  - 4$	$y = -3 x  + 6$
$y = 2 x  - 5$	$y = \frac{3}{4} x  + 1$	$y = -\frac{5}{3} x  - 1$