

Characteristics of Linear Functions

Notation

* All real numbers
 $(-\infty, \infty)$ or \mathbb{R}

Domain : left or right
use x-values
* Most domains will be \mathbb{R}
while graphing

Range: Bottom to top
Use y-values

End Behavior

what is the graph doing
at the end

going up $+\infty$

going down $-\infty$

As $x \rightarrow +\infty$, $y \rightarrow \underline{\quad}$
Right side

$x \rightarrow -\infty$, $y \rightarrow \underline{\quad}$
left side

Increase + decrease

Read left to right

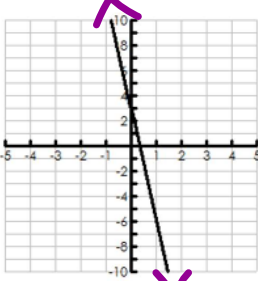
Characteristics of Functions

Domain and Range

- ⊙ Discrete Graphs: you just list the domain and range.
- ⊙ Continuous Graphs: you use Inequalities or Brackets
 $<, >, ()$: are used when there is an open dot or the number is NOT included on the graph.
 $\leq, \geq, []$: are used when there is a closed dot or when the number is included on the graph.

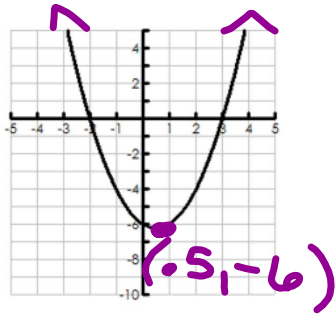
On Your Own:

1. Domain: \mathbb{R}
 Range: $(-\infty, \infty)$

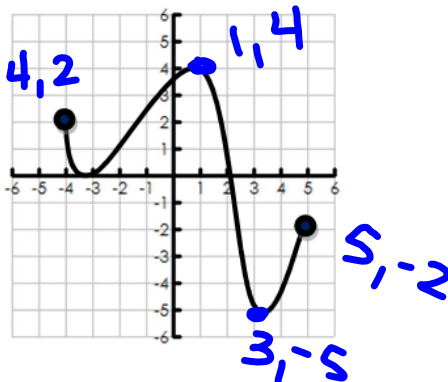


\mathbb{R}
 $(-\infty, \infty)$

2. Domain: \mathbb{R}
 Range: $[-6, \infty)$ or $y \geq -6$



3. Domain: $[-4, 5]$
 Range: $[-5, 4]$

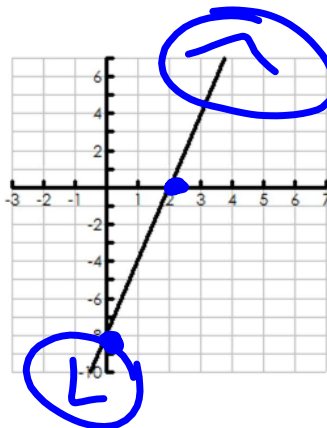


Intercepts

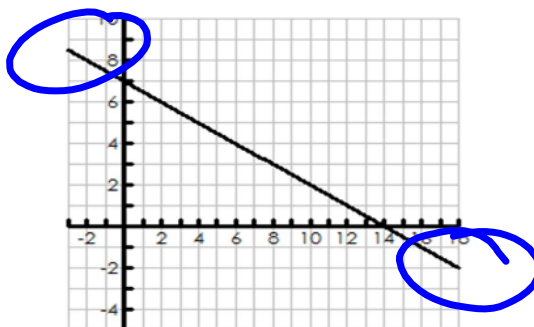
- ⊙ x-intercept: the point at which the line intersects the x-axis at $(x,0)$.
- ⊙ y-intercept: the point at which the line intersects the y-axis at $(0,y)$.
- ⊙ Zeros are the same thing as the x-intercepts

On Your Own:

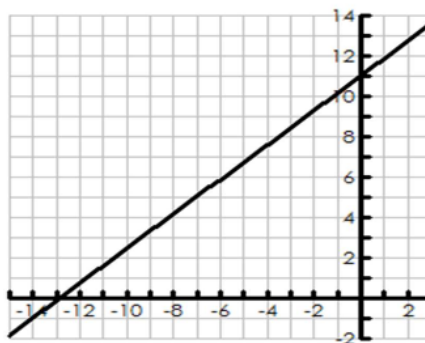
1. Domain: \mathbb{R}
 Range: \mathbb{R}
 x-int: $(2,0)$
 y-int: $(0,-8)$
 End Behavior:
 As $x \rightarrow \infty, y \rightarrow +\infty$
 As $x \rightarrow -\infty, y \rightarrow -\infty$
 Is the graph increasing or decreasing?



2. Domain: \mathbb{R}
 Range: \mathbb{R}
 x-int: $(14,0)$
 y-int: $(0,7)$
 End Behavior:
 As $x \rightarrow \infty, y \rightarrow -\infty$
 As $x \rightarrow -\infty, y \rightarrow +\infty$
 Is the graph increasing or decreasing?



3. Domain: \mathbb{R}
 Range: \mathbb{R}
 x-int: $(-13,0)$
 y-int: $(0,11)$
 End Behavior:
 As $x \rightarrow \infty, y \rightarrow +\infty$
 As $x \rightarrow -\infty, y \rightarrow -\infty$
 Is the graph increasing or decreasing?



GSE Algebra 1

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Notes

