

Key Features of Graphs

SECONDARY MATH II NOTES


{ 5.5 }

OBJECTIVE: Identify the key features of a graph including: maxima, minima, y-intercept, x-intercepts, and end behavior. Identify intervals of where a function is positive, negative, increasing, decreasing, and constant. Express these intervals in interval NOTATION.

Important *Points* on a Graph

X-intercepts		
Y-intercept		
Maxima (Plural for maximum)		
Minima (Plural for minimum)		

Important *Intervals* on a Graph

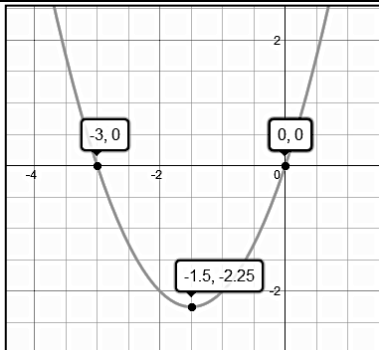
TYPE OF INTERVAL:	HOW WE WRITE IT:	WHAT IT MEANS FOR MARIO 
Increasing: A portion of a function is said to be increasing when the y-values INCREASE as the x-values increase.		
Decreasing: A portion of a function is said to be decreasing when the y-values DECREASE as the x-values increase.		
Constant: A portion of a function is said to be constant when the y-values remain the same as the x-values increase.		
Positive: A portion of the graph is positive if the y-values are positive.		
Negative: A portion of the graph is negative if the y-values are negative.		

A note about parentheses and brackets:

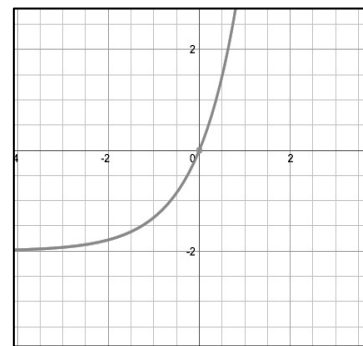
End Behavior

An explanation of how the y -values behave when the x -value approach positive and negative infinity (at the "ends" of the graph).

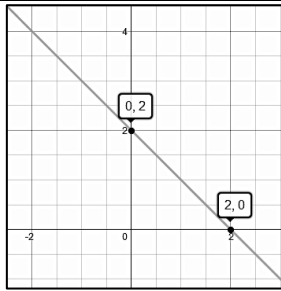
End Behavior	Examples
$As\ x \rightarrow -\infty, y \rightarrow -\infty$ <i>(as x approaches negative infinity, y approaches negative infinity)</i> $As\ x \rightarrow +\infty, y \rightarrow +\infty$	
$As\ x \rightarrow -\infty, y \rightarrow +\infty$ $As\ x \rightarrow +\infty, y \rightarrow -\infty$	
$As\ x \rightarrow -\infty, y \rightarrow -\infty$ $As\ x \rightarrow +\infty, y \rightarrow -\infty$	
$As\ x \rightarrow -\infty, y \rightarrow +\infty$ $As\ x \rightarrow +\infty, y \rightarrow +\infty$	
$As\ x \rightarrow -\infty, y \rightarrow -2$ $As\ x \rightarrow +\infty, y \rightarrow +\infty$	



x-intercept(s):
y-intercept:
 maxima:
 minima:
 interval of increasing:
 interval of decreasing:
 interval of constant:
 interval of positive:
 interval of negative:
 end behavior:



x-intercept(s):
y-intercept:
 maxima:
 minima:
 interval of increasing:
 interval of decreasing:
 interval of constant:
 interval of positive:
 interval of negative:
 end behavior:



x-intercept(s):

y-intercept:

maxima:

minima:

interval of increasing:

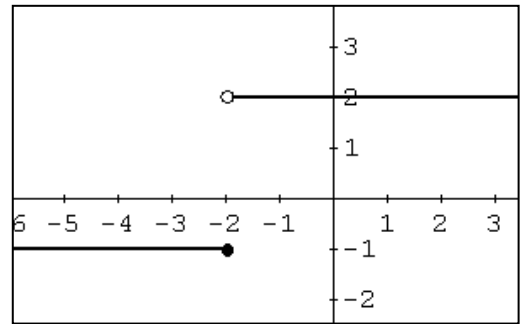
interval of decreasing:

interval of constant:

interval of positive:

interval of negative:

end behavior:



x-intercept(s):

y-intercept:

maxima:

minima:

interval of increasing:

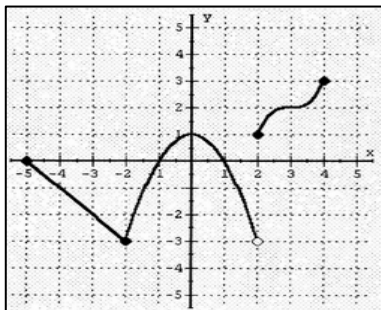
interval of decreasing:

interval of constant:

interval of positive:

interval of negative:

end behavior:



x-intercept(s):

y-intercept:

maxima:

minima:

interval of increasing:

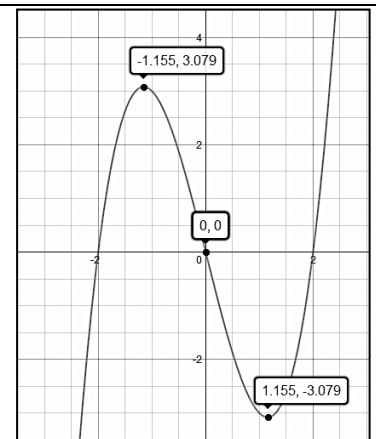
interval of decreasing:

interval of constant:

interval of positive:

interval of negative:

end behavior:



x-intercept(s):

y-intercept:

maxima:

minima:

interval of increasing:

interval of decreasing:

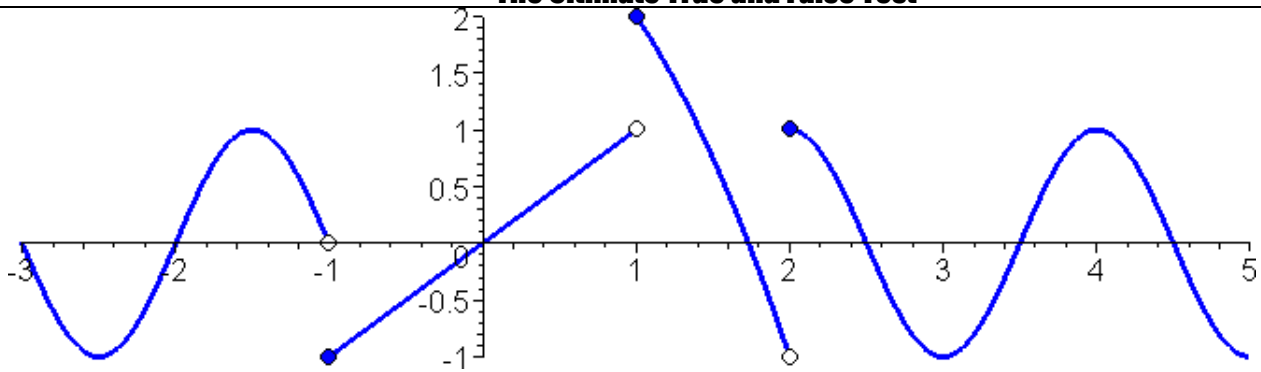
interval of constant:

interval of positive:

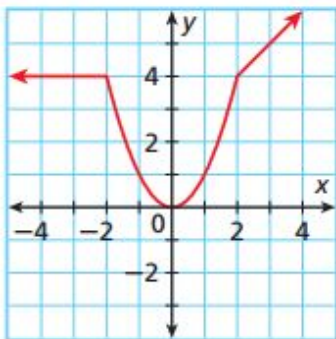
interval of negative:

end behavior:

The Ultimate True and False Test



1. _____ This function has a maximum at (2,1).
2. _____ This function is positive on the interval (0,5).
3. _____ This function is decreasing on the interval (2,3).
4. _____ This function is increasing on the interval [-1,1).
5. _____ This function has a minimum at (2,-1).
6. _____ This function has an x-intercept at (0,0).
7. _____ This function is negative on the interval (4,5).
8. _____ This function is increasing on the interval (3,4).
9. _____ This function has a minimum at (3,-1).
10. _____ This function has an x-intercept at (0,-2).



11. _____ This function is positive on the interval $(-2, \infty)$.
12. _____ This function is constant on the interval $(-\infty, -2)$.
13. _____ This function is negative on the interval $(-\infty, 0)$.
14. _____ This function has a minimum at $[0, 0]$.
15. _____ As $x \rightarrow +\infty, y \rightarrow +\infty$.
16. _____ This function is increasing on the interval $(0, \infty)$.
17. _____ This function is decreasing on the interval $(4, 0)$.
18. _____ This function has a maximum at $(-2, 4)$.