**We are going to focus on the following characteristics of radical functions:**

Domain & Range

Intercepts

Intervals of Increase/Decrease

Absolute Maximum/Minimum

End Behavior

**Domain & Range**

|  |  |
| --- | --- |
| **Domain** - all of the x-values that can go \_\_\_\_\_\_\_\_\_\_\_\_ the function. | **Range** - all of the y-values you can get \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the function. |
| **Even Index:**  **Domain** - Set the expression \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the square root **greater than or equal** **to** zero and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_..  **Range** - Use the y-coordinate from the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ value to help you determine the range.  \*If the graph goes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the minimum value, then the range will be **y \_\_\_\_ y-coordinate**  \*If the graph goes \_\_\_\_\_\_\_\_\_\_\_\_ the maximum value, then the range will be **y \_\_\_\_y-coordinate** | |
| **Odd Index:**  **Domain** - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **Range** - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |

**Intercepts**

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| **\*x-intercept** - the point (\_\_\_\_\_\_). You can find the value of x by plugging in zero for y and solving. | **\*y-intercept** - the point (\_\_\_\_\_\_). You can find the value of y by plugging in zero for x and solving. |

**Intervals of Increase/Decrease**

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| --- | --- |
| **\*Intervals of Increase** - the x-values of the graph where it goes \_\_\_\_\_\_\_\_\_\_ from left to right. | **\*Intervals of Decrease** - the x-values of the graph where it goes \_\_\_\_\_\_\_\_\_ from left to right. |
| **If the graph stops at the x-value, use \_\_\_\_\_\_\_.**  **If the graph continues at the x-value, use \_\_\_\_\_\_.** | |

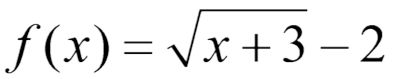
**Absolute Maximum/Minimum**

|  |  |
| --- | --- |
| **\*Absolute Maximum** - the \_\_\_\_\_\_\_\_\_ point on the graph. If this point is infinity, then there is \_\_\_\_\_ absolute maximum. | **\*Absolute Minimum** - the \_\_\_\_\_\_\_\_ point on the graph. If this point is infinity, then there is \_\_\_\_\_\_\_ absolute minimum. |

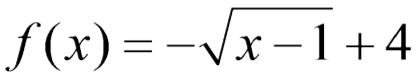
**End Behavior:**

Describes what f(x) does if you could follow the graph FOREVER!

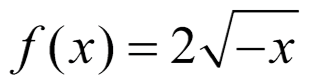
|  |  |
| --- | --- |
| **For even indexes...**  If your arrow points to the right...    If your arrow points to the left… | **For odd indexes...**    If the arrow points up, use \_\_\_\_\_\_\_\_  If the arrow points down, use \_\_\_\_\_\_ |

**Example # 1:** Describe the characteristics for the function given by the graph below.

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| Domain: \_\_\_\_\_\_\_\_\_\_\_\_  Range: \_\_\_\_\_\_\_\_\_\_\_\_  x-intercept: \_\_\_\_\_\_\_\_\_\_\_\_ y-intercept: \_\_\_\_\_\_\_\_\_\_\_\_  Intervals of Increase: \_\_\_\_\_\_\_\_\_\_\_\_  Intervals of Decrease: \_\_\_\_\_\_\_\_\_\_\_\_  Absolute Minimum: \_\_\_\_\_\_ Absolute Maximum: \_\_\_\_\_  End Behavior: |

**Example # 2:** Describe the characteristics for the function  given by the graph below.

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|  |
| Domain: \_\_\_\_\_\_\_\_\_\_\_\_  Range: \_\_\_\_\_\_\_\_\_\_\_\_  x-intercept: \_\_\_\_\_\_\_\_\_\_\_\_ y-intercept: \_\_\_\_\_\_\_\_\_\_\_\_  Intervals of Increase: \_\_\_\_\_\_\_\_\_\_\_\_  Intervals of Decrease: \_\_\_\_\_\_\_\_\_\_\_\_  Absolute Minimum: \_\_\_\_\_\_ Absolute Maximum: \_\_\_\_\_  End Behavior: |

**Example # 3:** Describe the characteristics for the function  given by the graph below.

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| Domain: \_\_\_\_\_\_\_\_\_\_\_\_  Range: \_\_\_\_\_\_\_\_\_\_\_\_  x-intercept: \_\_\_\_\_\_\_\_\_\_\_\_ y-intercept: \_\_\_\_\_\_\_\_\_\_\_\_  Intervals of Increase: \_\_\_\_\_\_\_\_\_\_\_\_  Intervals of Decrease: \_\_\_\_\_\_\_\_\_\_\_\_  Absolute Minimum: \_\_\_\_\_\_ Absolute Maximum: \_\_\_\_\_  End Behavior: |

**Example # 4:** Describe the characteristics for the function given by the graph below.

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| Domain: \_\_\_\_\_\_\_\_\_\_\_\_  Range: \_\_\_\_\_\_\_\_\_\_\_\_  x-intercept: \_\_\_\_\_\_\_\_\_\_\_\_ y-intercept: \_\_\_\_\_\_\_\_\_\_\_\_  Intervals of Increase: \_\_\_\_\_\_\_\_\_\_\_\_  Intervals of Decrease: \_\_\_\_\_\_\_\_\_\_\_\_  Absolute Minimum: \_\_\_\_\_\_ Absolute Maximum: \_\_\_\_\_  End Behavior: |