

Graphical Analysis

ID: 9988

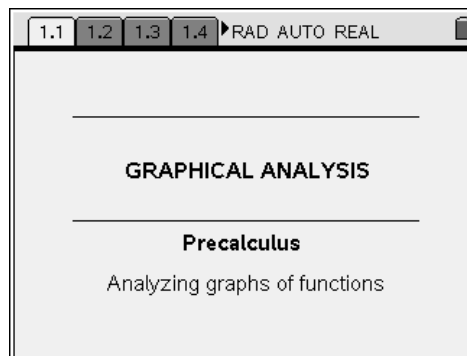
Name _____

Class _____

In this activity, you will explore:

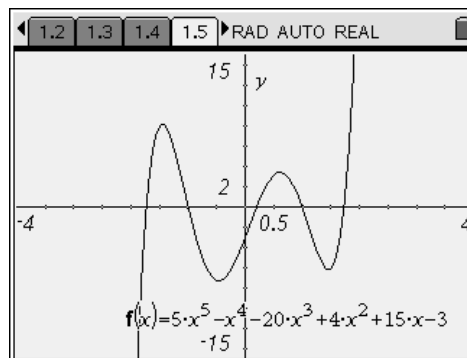
- Analyzing graphs of polynomial functions

Open the file *PreCalcAct05_GraphicalAnalysis_EN.tns* on your handheld and follow along with your teacher to work through the activity. Use this document as a reference and to record your answers.



Problem 1 – Examining a complete graph

For the complete graph shown on page 1.5, place a **Point On** the graph of $f(x)$ and drag the point along the graph to identify its key features.



zeros:

y-intercept:

minimum points:

maximum points:

positive intervals:

increasing intervals:

negative intervals:

decreasing intervals:

end behavior: as $x \rightarrow +\infty$, $f(x) \rightarrow$ _____

as $x \rightarrow -\infty$, $f(x) \rightarrow$ _____

- Describe how to identify increasing/decreasing intervals.
- Describe how to identify positive/negative intervals.

Problem 2 – Hidden behavior

- On page 2.2, adjust the **Window Settings** until you have a complete graph. Sketch it to the right, and indicate the viewing window.
- Where does the “hidden behavior” occur, and how did you find it?

- What key features might you have missed if you did not adjust the **Window Settings** to obtain a complete graph?

Problem 3 – Minimum and maximum points

The complete graph of a polynomial function is shown in page 3.2. Each minimum and maximum is labeled as **relative** or **absolute**.

- Based on your observations, explain the difference between a *relative* minimum or maximum and an *absolute* minimum or maximum.

- On page 3.4, adjust the **Window Settings** until you have a complete graph. Sketch it to the right, and indicate the viewing window.
- Find all extrema and identify them as relative or absolute.

Problem 4 – More practice

- On page 3.4, adjust the **Window Settings** until you have a complete graph. Sketch it to the right, and indicate the viewing window.
- Identify its key features, including whether each maximum or minimum is relative or absolute:

zeros:

y-intercept:

minimum points:

maximum points:

increasing intervals:

decreasing intervals:

positive intervals:

negative intervals:

end behavior: as $x \rightarrow +\infty$, $f(x) \rightarrow$ _____

as $x \rightarrow -\infty$, $f(x) \rightarrow$ _____