Math History for Precalculus
Karl Weierstrass

1. When did Karl Weierstrass (VIE er shtrahs) live? *1815–1897*

2. Where was he from? *Germany (Ostenfelde)*

3. What was his religious background? *devout Catholic*

4. In which sport did he excel? *fencing*

5. What kind of work did he do until his mathematical research received recognition? *high-school teacher*

   His early paper "Contributions to the Theory of Abelian Integrals"
   appeared in a high-school publication for 1848–1849 and went unnoticed.

6. How and when was the paper on Abelian functions that brought him recognition published? *published in Crellé's Journal, 1854*

7. What prompt response did the paper produce? *He received an honorary PhD from the University of Königsberg and a teaching position at the University of Berlin.*

8. Which of Weierstrass's colleagues criticized his work mercilessly? How did Weierstrass respond? *Leopold Kronecker criticized him. It wounded him inside, but he did not retaliate, and they remained friends.*

9. Weierstrass and another man share the honor for a theorem on limit points of infinite sets. Who is the other man, and when did he live? *Bernhard Bolzano, 1781–1848 (Bolzano-Weierstrass theorem)*

   Weierstrass proved the central role of polynomials in the theory of functions. The Weierstrass approximation theorem shows that every continuous function on a closed interval $[a, b]$ can be approximated to any given level of accuracy by some polynomial. Later, he also gave the first example of a continuous function that never has a tangent line at any point of its graph.

10. His careful analysis of functions brought a systematic, rigorous development to calculus. Because of his work, he is rightfully called the Father of what? *modern analysis*