Presentations 04A

Show that light traveling along a line toward a parabolic mirror (assume equation $y = ax^2$) parallel to the axis of symmetry is reflected toward the focus.	1
State and explain Newton's generalized binomial theorem.	2
Use the binomial theorem to expand $\frac{1}{1+x}$. Then use long division to do the same expansion.	3
Use the binomial theorem to expand $\sqrt{1+x}$.	4
Use long division and (modern) integration to obtain Mercator's identity: $$\ln(1+x) = x - \frac{x^2}{2} + \frac{x^3}{3} - \frac{x^4}{4} + \cdots$$	5
Derive Newton's method to calculate a root of an equation. Do an example.	6
Describe the "Witch of Agnesi" curve. What is it good for?	7