**Presentations06**

**Early Modern and Early Calculus**

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|  | **Topic/Exercise** |  |  |
| 1 | Calculate the Parallax, from opposite sides of earth’s orbit (~ 184,000) miles), of the nearest star. |  |  |
| 2 | Show that light traveling along a line toward a parabolic mirror (assume equation ) parallel to the axis of symmetry is reflected toward the focus. (Use some modern calculus and DE’s.) |  |  |
| 3 | State and explain Newton’s generalized binomial theorem. |  |  |
| 4 | Use the binomial theorem to expand . Then use long division to do the same expansion.  |  |  |
| 5 | Use the binomial theorem to expand . |  |  |
| 6 | Use long division and (modern) integration to obtain Mercator’s identity:[See #4 above.] |  |  |
| 7 | Derive Newton’s method to calculate a root of an equation. Do an example. |  |  |
| 8-10 | Work through one of my “notes” after the solution of the quartic. See #8 and #9 below. |  |  |
| 8 | Descartes’ Method for finding tangents from<http://webhome.auburn.edu/~smith01/math3010Sp25/DescartesTangent.pdf>  |  |  |
| 9 | Barrow’s or Newton’s method for finding tangents from <http://webhome.auburn.edu/~smith01/math3010Sp25/TheEarlyCalculus.pdf>  |  |  |
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| 11 | Select problems from your textbook from the Early Calculus section to do. |  |  |