MTH 385 2022-03-30 Worksheet

Exercise 1. *Recall the idea of Menaechmus that gives "a very simple solution to the problem of duplicating the cube" from Section 2.4 of the textbook.*

Exercise 2 (6.1.1)**.** *Generalize the idea of Menaechmus to show that any cubic equation*

$$ax^3 + bx^2 + cx + d = 0 \qquad \textit{and} \qquad d \neq 0$$

may be solved by intersecting the hyperbola $xy = 1$ *with a parabola.*

Exercise 3. *In the* 17*th century, Fermat and Descartes developed an important mathematical innovation. What was it?*

Exercise 4. *What then-unsolved problem does the textbook use to illustrate Descartes' hubris? What did he say about it? And, how is the problem solved?*