Assignment #2
Due on Friday, 6 October.

Plimpton 322 is a cuneiform tablet with a table of numbers written on it. (Figure 2-1 on page 48 of the textbook is a picture of this tablet; there is a bit of discussion of it on page 63.) There are several theories as to what it really means, a couple of which are discussed in *Words and Pictures: New Light on Plimpton 322* by Eleanor Robson (*American Mathematical Monthly* **109** (2002), pp. 105–120). You can find this article in the JSTOR archive at: `www.jstor.org/stable/2695324` (For more detail, you can also try *Neither Sherlock Holmes nor Babylon: a reassessment of Plimpton 322* by Eleanor Robson (*Historia Mathematica* **28** (2001), pp. 167–206).) Bata Library has copies of this journal on paper through 2001 and it is available electronically through the Library's e-journal services.

A new theory as to what the tablet is about was proposed this last summer in *Plimpton 322 is Babylonian exact sexagesimal trigonometry* by Daniel F. Mansfield and N.J. Wildberger. This paper will appear in *Historia Mathematica* at some point in the future; in the meantime a draft can be found at :

$$\text{www.sciencedirect.com/science/article/pii/S0315086017300691}$$

1. Describe the major interpretations of Plimpton 322, as described in the papers whose links are given above. *[4]*

2. Summarize the arguments for and against each interpretation. *[4]*

3. In your opinion, which interpretation, if any, is correct? Why or why not? *[2]*

Ode to a ϕ?

A thing as lovely as a ϕ

I think that I shall never $\left\{ \begin{array}{c} \text{see} \\ \text{spy} \end{array} \right\}$. [Choose one.]

If you want to make ϕ rhyme with "see",
But you're really determined to be
    Consistent, admit
    Though it doesn't quite fit,
That a disk measures r^2 times "pea".

Each of ξ, π, ϕ, χ, ψ will claim
An identical rhyme for its name.
    Before you get hot,
    Check Liddell and Scott*;
Give them, not the author, the blame.

By Barry W. Brunson, *American Mathematical Monthly* **92** (1985).

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* *A Greek-English Lexicon*, compiled by H.G. Liddell & R. Scott, Oxford at the Clarendon Press, 1968 (1st edition 1843); widely recognized as authoritative. In the United States, most mathematicians seem to pronounce ϕ as "fee".