Mathematics-Science 380 – History of Mathematics
Trent University, 2006–2007

Assignment #7
*Due in the week of 22 January, 2007.*

1. Chapter 21 Exercise 7 *[3]*
Bonus: Write your solution in (good!) verse. *[1]*

A quadrilateral which can be inscribed in a circle is said to be *cyclic*. The Indian mathematician Brahmagupta discovered the following relative of Heron's formula, although he apparently did not trouble to prove it.

- Suppose a cyclic quadrilateral has sides of lengths a, b, c, and d, respectively, and let $s = (a + b + c + d)/2$. Then the area of the quadrilateral is given by:

$$A = \sqrt{(s - a)(s - b)(s - c)(s - d)}$$
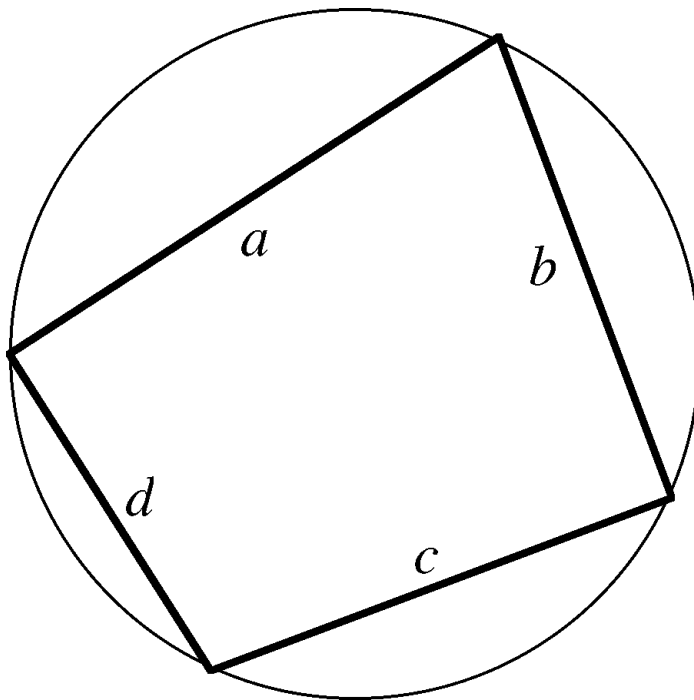
2. Prove Brahmagupta's formula for the area of a cyclic quadrilateral. *[7]*