

Math 570 - Homework 6
Due Wednesday, March 8, 2006

1. On page 120 of Burton, solve problems 13 and 14.

- On 13(a), you need only solve the inequality

$$\sqrt{n} = \sqrt{a^2 \pm b} < a \pm \frac{b}{2a}.$$

(You may solve the other part for extra credit.) Hint: Consider the two cases ($n = a^2 + b$ and $n = a^2 - b$) separately.

- Hint for 14: When you divide $a^2 - b$ by 3, you get a perfect square, which you can then pull out of the square root.

2. On page 233 of Burton, solve problems 8 and 10.
3. Divide the number 36 into the sum of two squares similarly to Diophantus' solution for 16 in Book II, Problem 8.
4. Using the following diagram, find a formula (in terms of chords of other angles) for $\text{chord}(\alpha - \beta)$. (This is the new and improved version of the thrown-out problem from the previous assignment!)