

Mathematics 3820H – Mathematics from medieval to modern times

TRENT UNIVERSITY, Fall 2014

Assignment #2

Due on Friday, 7 October.

1. Find out everything you can about Yusuf al-Mu'taman ibn Hūd and his main mathematical work, the *Kitāb al-Istikmāl*. Summarize what we know of both the man and his work in mathematics. Don't forget to cite your sources! [5]
2. Find out everything you can about Leonardo of Pisa (*a.k.a.* Fibonacci) and his book *Liber Quadratorum*, and summarize it. Again, don't forget to cite your sources. [5]

Sonnet xlv

Euclid alone has looked on Beauty bare.
Let all who prate of Beauty hold their peace,
And lay them prone upon the earth and cease
To ponder on themselves, the while they stare
At nothing, intricately drawn nowhere
In shapes of shifting lineage; let geese
Gabble and hiss, but heroes seek release
From dusty bondage into luminous air.
O blinding hour, O holy, terrible day,
When first the shaft into his vision shone
Of light anatomized! Euclid alone
Has looked on Beauty bare. Fortunate they
Who, though once only and then but far away,
Have heard her massive sandal set on stone.

Edna St. Vincent Millay

Lobachevsky alone has looked on Beauty bare.
She curves in here, she curves in here. She curves out there.
Her parallel clefts come together to tease
In un-callipygianous-wise;
With fewer than one hundred eighty degrees
Her glorious triangle lies.
Her double-trumpet symmetry Riemann did not court –
His tastes to simpler-curvedness, the buxom Teuton sort!
An ellipse is fine for as far as it goes,
But modesty, away!
If I'm going to see Beauty without her clothes
Give me hyperbolas any old day.
The world is curves, I've heard it said,
And straightway in it nothing lies.
This then my wish, before I'm dead:
To look through Lobachevsky's eyes.

*Roger Zelazny, from his novel *Doorways in the Sand*.*