

Presentations 03B

Your textbook should have some exercises on the Fibonacci numbers. Select some to do.	1
If $\{F_n\}_{n=1}^{\infty}$ denotes the Fibonacci sequence, show how to calculate $\lim_{n \rightarrow \infty} \frac{F_{n+1}}{F_n}$. Hint (if you want to do it without looking up a proof): replace F_{n+1} with $F_n + F_{n-1}$ and look at that equality; then multiply top and bottom with $\frac{1}{F_n}$.	2
Consider the general cubic equation: $x^3 + ax^2 + bx + c = 0$ substitute $x = t + k$ and determine the value of k that makes the t^2 term vanish.	3
Explain the Ptolemaic system of the solar system. Explain retrograde motion and how Ptolemy addressed it.	4
Use Newton's laws to prove Galileo's claim that objects fall at the same rate from the same height regardless of being of different weights. Hint: use his law of Gravity plus his laws of motion.	5
[If you've had differential equations and want a challenge.] Use the laws of Newton to prove one of more of Kepler's laws.	6
What is the "problem of points"? Give an example and solve it.	7
Explain how logarithms were invented and why.	8