User Interfaces for OpenDreamKit

- Notebook Interfaces
- Interactive Documentation
- Applications of Notebooks, Widgets

We have already computed $P(X|A)$ above. On the other hand, $P(X|A)$ is subjective: our code can pass tests but still have a bug in it, though the probability there is a bug present is reduced. Note this is dependent on the number of tests performed, the degree of complication in the tests, etc. Let's be conservative and assign $P(X|A) = 0.5$. Then

$$P(A|X) = \frac{1 \cdot p}{1 \cdot p + 0.5(1 - p)}$$

$$= \frac{2p}{1 + p}$$

This is the posterior probability. What does it look like as a function of our prior, $p \in [0, 1]$?
Notebook Interfaces

- Unify Notebooks (SageJupyter)
- Improve Notebook Collaboration
  - High Latency (diff & merge)
  - Real-time (GDocs-style, already in SageMathCloud)
- Notebooks for Testing and Verification
Interactive Documentation

• Active Documentation with Notebooks

• Application for discovering and displaying documentation

• Active Document Hub/Portal (MathHub)

• Structured documents (books, articles)
Applications

• Explore web-based 3D-vis in notebooks
• Fluid Dynamics notebook vis
• Micromagnetics:
  • Notebook examples
  • VRE for micromagnetics
  • Non-notebook web application