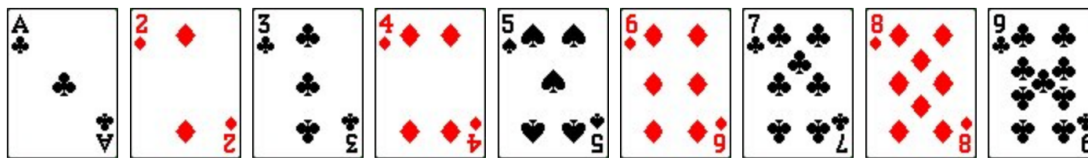Pensieve header: Plotting a saddle and a torus for January 27.

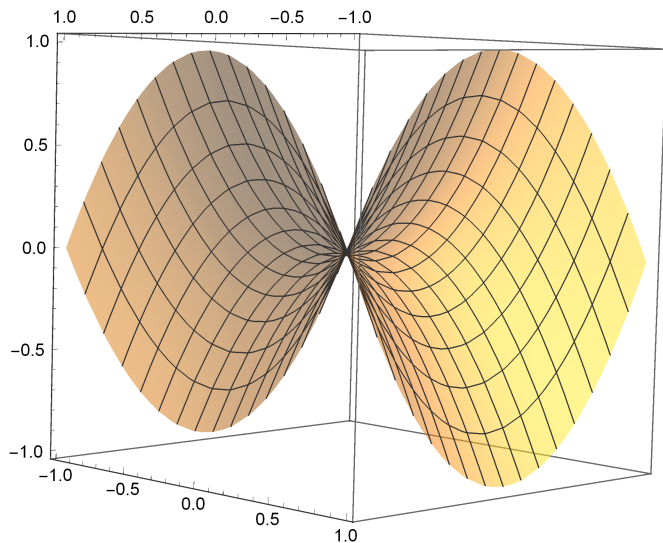## 1617-257 Fri Jan 27, hour 46: Manifolds and boundaries, integration on manifolds.

Read Along. Sections 24-25.

Riddle Along. The game of 15 is played as follows. Two players alternate choosing cards numbered between 1 and 9, with repetitions forbidden, so the game ends at most after 9 moves (or $4\frac{1}{2}$ rounds). The first player to have within their cards a set of precisely 3 cards that add up to 15 wins. Would you rather move first or second?

Anyone looks good (from some angle)

```
ParametricPlot3D[
  {x, y, x² - y²},
  {x, -1, 1}, {y, -1, 1},
  PlotStyle -> Opacity[0.5],
  ViewPoint → {5, 5, 0}, ViewVertical → {0, 0, 1}
]
```

```
ParametricPlot3D[
 {Cos[α] (2 + Cos[β]), Sin[α] (2 + Cos[β]), Sin[β]},
 {α, 0, 2 π}, {β, 0, 2 π},
 PlotStyle -> Opacity[0.5],
 ViewPoint → {5, 5, 0}, ViewVertical → {0, 0, 1}
]
```