Function cards:

1. $y=\sin (x)$
2. $y=-x^{2}+4$
3. $y=3-\sqrt{x}$
4. $y=\cos (x)$
5. $y=1$
6. $y=-1$
7. $y=\ln (x)$
8. $y=-\ln (x)$
9. $y=2 \cos (x)$
10. $y=2 \sin (x)$
11. $y=-\left(x^{2}-x-6\right)$
12. $y=4 \sin (2 x)$
13. $y=8 \cos (2 x)$
14. $y=-\sin (x)$
15. $y=-|x|+3$
16. $y=\sin (x)+1$
17. $y=\cos (x)+1$
18. $y=-x^{2}+3 x$
19. $y=-\left(x^{2}-6 x+5\right)$
20. $y=-x^{3}+8$
21. $y=-|x-4|+3$
22. $y=-|0.5 x-2|+2$
23. $y=0.1 x$
24. $y=\frac{2}{x+1}$
25. $y=x^{1 / 3}-1$
26. $y=\frac{3 x-8}{x+2}$
27. $y=\frac{3 \sin (2 x)}{x}$
28. $y=\frac{7 x^{2}}{3 x^{3}+1}$
29. $y=-x^{3}+3 x^{2}$
30. $y=-4 x^{3}+8 x^{2}$
31. $y=\frac{10 \cos (x)}{x+1}$
32. $y=-3 x^{7}+6 x^{6}$
33. $y=-2 x^{2}$
34. $y=\frac{27 \sin (x)}{5 x}$
35. $y=-(x!)+6$
36. $y=\frac{(x+1)^{3}}{1000}+1$
37. $y=\frac{30 \sin (0.5 x)^{3}}{5+x}$
38. $y=4 \sin (\cos (x))$
39. $y=-e^{x}+6$
40. $y=-\frac{(x-9)}{5}$
41. $y=-x^{3}+3 x^{2}-x$
42. $y=-x^{2}+4 x+1$
43. $y=-\cos (x)$
44. $y=4 \sin (\pi x)$
45. $y=-\tan ^{-1}(x)+2$
46. $y=\frac{(x-3)^{4}}{5000}+1$
47. $y=1 / e^{x}$
48. $y=0.5^{x-3}-1$
49. $y=\sqrt{4-(x-2)^{2}}$
50. $y=-3^{x}+9$
51. $y=\frac{d}{d x} 3 \sin (x)$
52. $y=\frac{d}{d x} 2 \cos (2 x)$
53. Graph (x6): See the graph of function before playing a function card.
54. Flip (x2): Vertical reflection with respect to x -axis (type -[function])
55. End +2 (x2): Increase EndBound by 2
56. X2 (x2): Multiply function by 2
57. Function (x2): Draw an extra function card (do not replenish)
58. EndBound (x2): Draw an extra EndBound card (do not replenish)
59. $\mathrm{f}(\mathrm{x})+1(\mathrm{x} 4)$ : Add 1 to function
60. Substitute (x4): Give up two cards and draw two cards of matching type
61. Exchange $\mathrm{f}(\mathrm{x})(\mathrm{x} 3)$ : Exchange one function card with a player of your choosing (their choice)
62. Exchange EndBound (x3): Exchange one EndBound card with a player of your choosing (their choice)
63. $\pm 5$ (x2): Move forward or backward any number of steps within 5 steps
64. Test (x4): See the answer of integral with any EndBound before committing
65. Divide (x2): Divide another player's function by 2
66. Start Bound (x4): Change start bound to $\pm 1$
67. 2 Turns (x2): Take 2 turns in a row
68. Round (x2): You get the choice of rounding the answer up or down after seeing it
69. Portal (x2): Protects you from a Portal (use after landing on one)
70. Value ( $x 4$ ): Instead of doing the integral, use value of $f($ EndBound ) to determine how far you move
71. Subtract (x2): Subtract another player's function by 1 (before integral is calculated)

## List of Materials:

- 52 Function cards (red backs, yellow fronts)
- 54 EndBound cards (black backs, blue fronts)
- 4(1-10)
- $4(\pi)$
- $4\left(\frac{\pi}{2}\right)$
- $2\left(\frac{\pi}{4}\right)$
- $2(-1)$
- $2(-2)$
- 54 Power cards (firebirds backs, white fronts)
- Board
- 6 Game pieces (2-6 players)
- Desmos on a device (not included)


## Rules

- At a Glance: $\int_{0}^{\text {(EndBound Card) }}$ (Function Card) $d x=$ Steps to move
- Starting deck: 3 function cards, 5 EndBound cards.
- Card Limit: Have 3 Function cards and 5 EndBound Cards at all times (unless a power card allows for temporarily more cards).
- Beginning the game: To determine who goes first, each player draws an EndBound card. The highest card goes first. If there are ties, repeat as necessary.
- Turn: A turn consists of playing a Function card along with an EndBound card that moves the player's piece, and sometimes a power card.
- Movement: The steps to move for each player per turn is determined by the definite integral of the Function card from 0 to the value on the EndBound card played.
- Undefined: If the definite integral is undefined, the player stays in the same place.
- Zero: If a player moves 0 step due to the definite integral being 0 or undefined and is standing on a ladder or power card step, the player has to trigger what's on the step.
- Negative: Negative definite integral value causes a player to move backwards.
- Decimals: Round to the nearest whole number.
- Movement limits: If the definite integral is negative, the maximum number of steps a player has to move backwards is 10 . The maximum for forwards movement is 25 steps.
- Power Cards: Landing on a spot with a Power card sign will provide the player with a power card, which can be stored in a player's hand until use (no limit to number of power cards in a player's hand). Maximum of 1 power card played per turn. Power cards are unique. Follow the instructions on the power cards for how to use them. Power cards are used at the beginning of the player's turn unless otherwise stated or implied.
- Ladders/Portals: Landing on one end of a ladder will transport you to the other end of the ladder, whether it's forwards or backwards. Draw a Power card after being transported.
- To win: 1st person to reach end of board wins. The player does not have to land exactly on the ending step and is allowed to go over the ending step.

