

Freaking Functions!

Rules:

Draw 1 card and then roll 1 regular 6-sided die.

If the number you roll is even, all players then evaluate the function at the value given on your card.

If the number you roll is odd, all players must find values such that $f(x)$ has the value indicated on your card. In some cases, you will find that more than one value.

The first person with the correct answer moves on the game board as follows:

2 spaces if the answer is on their own color.

1 space if the answer is on an opponent's color (and the opponent moves back 1 space).

The first person to home wins.

Game Board

| |
|-----------------------|
| 71 |
| $\frac{-}{8}$ |
| 361 |
| 20 |
| -8 |
| 100 |
| 20 |
| 15 |
| $\sqrt{5} + \sqrt{6}$ |

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|-------|
| START |
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|-----------------------------|
| -1, 3 |
| -5 |
| 1, 81 |
| $\frac{\pm 4, \pm 1}{5' 5}$ |
| 4 11 |
| 64 |
| 1 |

| | | | | | | | | | |
|-------|--|--|--|--|--|--|--|--|--|
| START | | | | | | | | | |
|-------|--|--|--|--|--|--|--|--|--|

| |
|------|
| HOME |
|------|

| | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|-------|
| | | | | | | | | | START |
|--|--|--|--|--|--|--|--|--|-------|

| |
|----------------|
| -7, -1 |
| 20 |
| 16 |
| $\pm 5, \pm 2$ |
| 1, 5 |
| 27, 125 |
| 1 |

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| |
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| |
| START |

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|------------------------|
| 1 |
| $\frac{-}{2}$ |
| 31 |
| $\frac{-}{12}$ |
| 9 |
| 16 |
| 44 |
| -8 |
| $\sqrt{7} + \sqrt{19}$ |

| | |
|---|---|
| <p style="text-align: center;">Function</p> $f(x) = x + \frac{7}{x}$ | <p style="text-align: center;">Value</p> <p style="text-align: center;">-8</p> |
| <p style="text-align: center;">Function</p> $f(x) = x - \frac{3}{x}$ | <p style="text-align: center;">Value</p> <p style="text-align: center;">2</p> |
| <p style="text-align: center;">Function</p> $f(x) = \frac{6x}{5} - \frac{x}{4}$ | <p style="text-align: center;">Value</p> <p style="text-align: center;">19</p> |
| <p style="text-align: center;">Function</p> $f(x) = \frac{2x}{x+1} + \frac{5}{2x}$ | <p style="text-align: center;">Value</p> <p style="text-align: center;">2</p> |
| <p style="text-align: center;">Function</p> $f(x) = x - 2\sqrt{x} - 8$ | <p style="text-align: center;">Value</p> <p style="text-align: center;">0</p> |
| <p style="text-align: center;">Function</p> $f(x) = x - 10\sqrt{x} + 9$ | <p style="text-align: center;">Value</p> <p style="text-align: center;">0</p> |
| <p style="text-align: center;">Function</p> $f(x) = x^4 - 29x^2 + 100$ | <p style="text-align: center;">Value</p> <p style="text-align: center;">0</p> |

Playing Cards

| | |
|--|---|
| <p style="text-align: center;">Function</p> $f(x) = x^4 - 17x^2 + 16$ | <p style="text-align: center;">Value</p> <p style="text-align: center;">0</p> |
| <p style="text-align: center;">Function</p> $f(x) = (2x + 3)^2 - 18(2x + 3) + 65$ | <p style="text-align: center;">Value</p> <p style="text-align: center;">0</p> |
| <p style="text-align: center;">Function</p> $f(x) = (5x - 1)^2 - 13(5x - 1) + 30$ | <p style="text-align: center;">Value</p> <p style="text-align: center;">0</p> |
| <p style="text-align: center;">Function</p> $f(x) = x^{2/3} - 8x^{1/3} + 15$ | <p style="text-align: center;">Value</p> <p style="text-align: center;">0</p> |
| <p style="text-align: center;">Function</p> $f(x) = x^{2/3} - 2x^{1/3} - 8$ | <p style="text-align: center;">Value</p> <p style="text-align: center;">0</p> |
| <p style="text-align: center;">Function</p> $f(x) = \sqrt{2x - 1} + \sqrt{x + 3}$ | <p style="text-align: center;">Value</p> <p style="text-align: center;">3</p> |
| <p style="text-align: center;">Function</p> $f(x) = \sqrt{5x - 1} + \sqrt{x - 3}$ | <p style="text-align: center;">Value</p> <p style="text-align: center;">4</p> |

Answers

| Function | t | f(x) = t | f(t) |
|--|----|-----------------------------|------------------------|
| $f(x) = x + \frac{7}{x}$ | -8 | -7, -1 | $-\frac{71}{8}$ |
| $f(x) = x - \frac{3}{x}$ | 2 | -1, 3 | $\frac{1}{2}$ |
| $f(x) = \frac{6x}{5} - \frac{x}{4}$ | 19 | 20 | $\frac{361}{20}$ |
| $f(x) = \frac{2x}{x+1} + \frac{5}{2x}$ | 2 | -5 | $\frac{31}{12}$ |
| $f(x) = x - 2\sqrt{x} - 8$ | 0 | 16 | -8 |
| $f(x) = x - 10\sqrt{x} + 9$ | 0 | 1, 81 | 9 |
| $f(x) = x^4 - 29x^2 + 100$ | 0 | $\pm 5, \pm 2$ | 100 |
| $f(x) = x^4 - 17x^2 + 16$ | 0 | $\pm 4, \pm 1$ | 16 |
| $f(x) = (2x + 3)^2 - 18(2x + 3) + 65$ | 0 | 1, 5 | 20 |
| $f(x) = (5x - 1)^2 - 13(5x - 1) + 30$ | 0 | $\frac{4}{5}, \frac{11}{5}$ | 44 |
| $f(x) = x^{2/3} - 8x^{1/3} + 15$ | 0 | 27, 125 | 15 |
| $f(x) = x^{2/3} - 2x^{1/3} - 8$ | 0 | 64 | -8 |
| $f(x) = \sqrt{2x - 1} + \sqrt{x + 3}$ | 3 | 1 | $\sqrt{5} + \sqrt{6}$ |
| $f(x) = \sqrt{5x - 1} + \sqrt{x - 3}$ | 4 | 1 | $\sqrt{7} + \sqrt{19}$ |