**Area Models—Who Will Be the Lucky Winner?**

Jacob designed a game for the school carnival. Each player spins the spinner below twice on each turn. Each player earns a point based on different spin combinations. Draw an area model for each player to help you decide who is most likely to win the game.

1

2

3

4

**Player 1:**

**Earns one point if player gets 1 or 2 on the first spin and 1 on the second spin.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** |
| **1** |  |  |  |  |
| **2** |  |  |  |  |
| **3** |  |  |  |  |
| **4** |  |  |  |  |

Probability = \_\_\_\_\_\_\_\_\_\_\_

**Player 2:**

**Earns one point if player gets a prime number on the first spin and a composite number on the second spin.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** |
| **1** |  |  |  |  |
| **2** |  |  |  |  |
| **3** |  |  |  |  |
| **4** |  |  |  |  |

Probability = \_\_\_\_\_\_\_\_\_\_\_

**Player 3:**

**Earns one point if player gets the same number on both spins.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** |
| **1** |  |  |  |  |
| **2** |  |  |  |  |
| **3** |  |  |  |  |
| **4** |  |  |  |  |

Probability = \_\_\_\_\_\_\_\_\_\_\_

**Player 4:**

**Earns one point if the first spin is less than 4 and the second spin is exactly 4.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** |
| **1** |  |  |  |  |
| **2** |  |  |  |  |
| **3** |  |  |  |  |
| **4** |  |  |  |  |

Probability = \_\_\_\_\_\_\_\_\_\_\_

**Which player has the greatest possibility of winning after 20 turns?**

**Explain why you think so.**

**Area Models—Who Will Be the Lucky Winner? KEY**

Jacob designed a game for the school carnival. Each player spins the spinner below twice on each turn. Each player earns a point based on different spin combinations. Draw an area model for each player to help you decide who is most likely to win the game.

1

2

3

4

**Player 1:**

**Earns one point if player gets 1 or 2 on the first spin and 1 on the second spin.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** |
| **1** |  |  |  |  |
| **2** |  |  |  |  |
| **3** |  |  |  |  |
| **4** |  |  |  |  |

Probability = $\frac{2}{16}=\frac{1}{8}$

**Player 2:**

**Earns one point if player gets a prime number on the first spin and a composite number on the second spin.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** |
| **1** |  |  |  |  |
| **2** |  |  |  |  |
| **3** |  |  |  |  |
| **4** |  |  |  |  |

Probability = $\frac{2}{16}=\frac{1}{8}$

**Player 3:**

**Earns one point if player gets the same number on both spins.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** |
| **1** |  |  |  |  |
| **2** |  |  |  |  |
| **3** |  |  |  |  |
| **4** |  |  |  |  |

Probability = $\frac{4}{16}=\frac{1}{4}$

**Player 4:**

**Earns one point if the first spin is less than 4 and the second spin is exactly 4.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** |
| **1** |  |  |  |  |
| **2** |  |  |  |  |
| **3** |  |  |  |  |
| **4** |  |  |  |  |

Probability = $\frac{3}{16}$

**Which player has the greatest possibility of winning after 20 turns?**

**Explain why you think so.**

***Player 3.***

***Explanations will vary. Explanation should include comparison of probabilities. Player 3 has a higher probability on each turn of earning one point and, therefore, is more likely after 20 turns to have earned the most points.***