

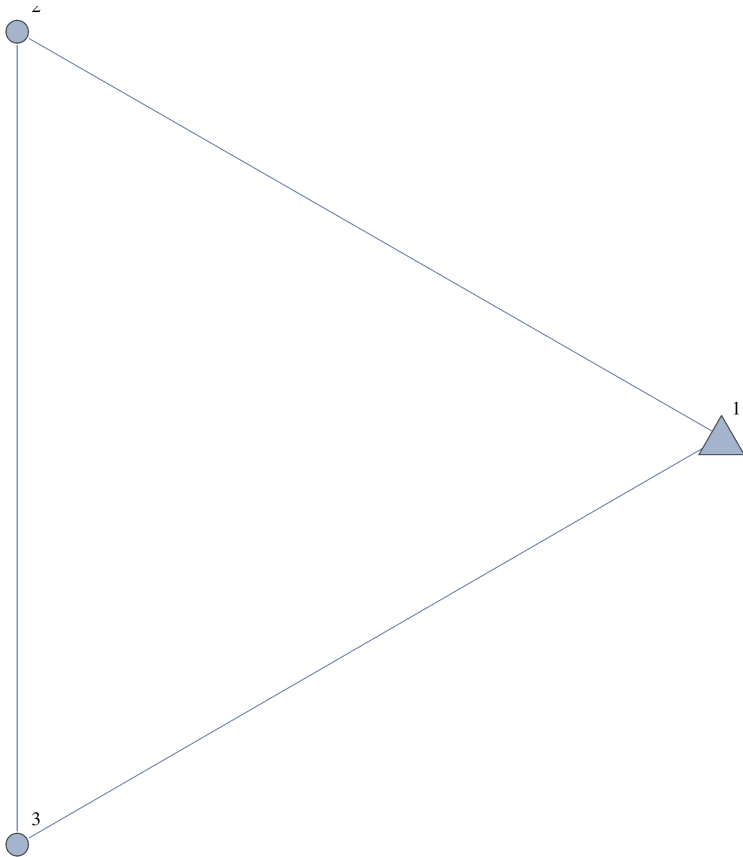
# The $K_3$ with arbitrary weight

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## Start of the game

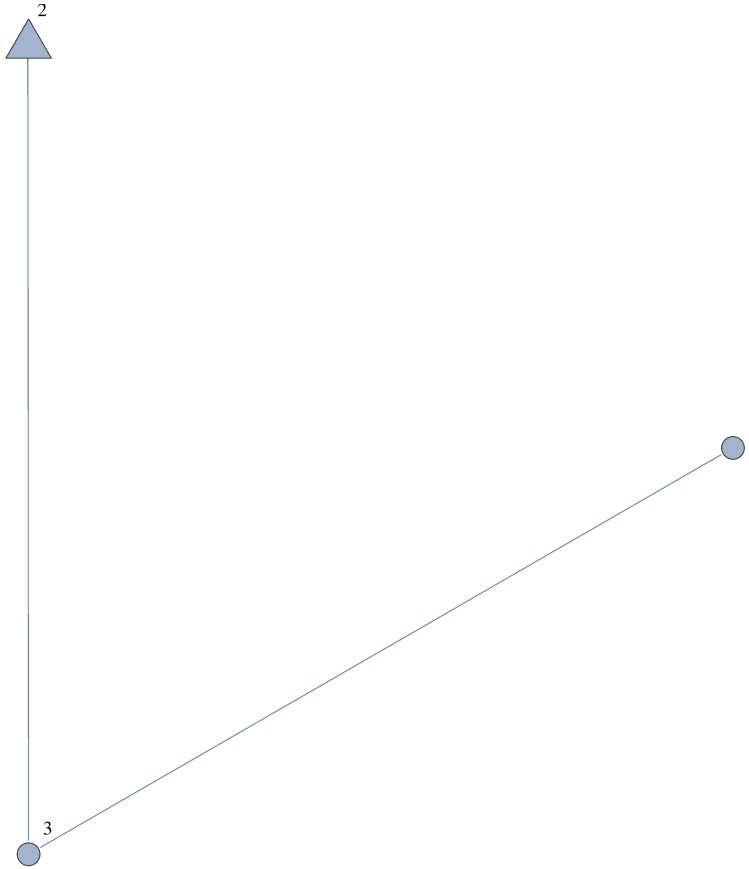
### ■ Player 1's Turn

```
Graph[{1, 2, 3}, {1 ↔ 2, 1 ↔ 3, 2 ↔ 3},  
VertexLabels -> "Name", VertexShapeFunction -> {1 -> "Triangle"},  
VertexSize -> {1 -> 0.05}, GraphLayout -> "CircularEmbedding"]
```



### ■ Player 2's Turn

```
Graph[{1, 2, 3}, {1 ↔ 3, 2 ↔ 3}, VertexLabels -> "Name",  
VertexShapeFunction -> {2 -> "Triangle"},  
VertexSize -> {2 -> 0.05}, GraphLayout -> "CircularEmbedding"]
```



### ■ Player 1's Turn

(0)

```
Graph[{1, 2, 3}, {1 ↔ 3}, VertexLabels -> "Name",  
VertexShapeFunction -> {3 -> "Triangle"},  
VertexSize -> {3 -> 0.45}, GraphLayout -> "CircularEmbedding"]
```

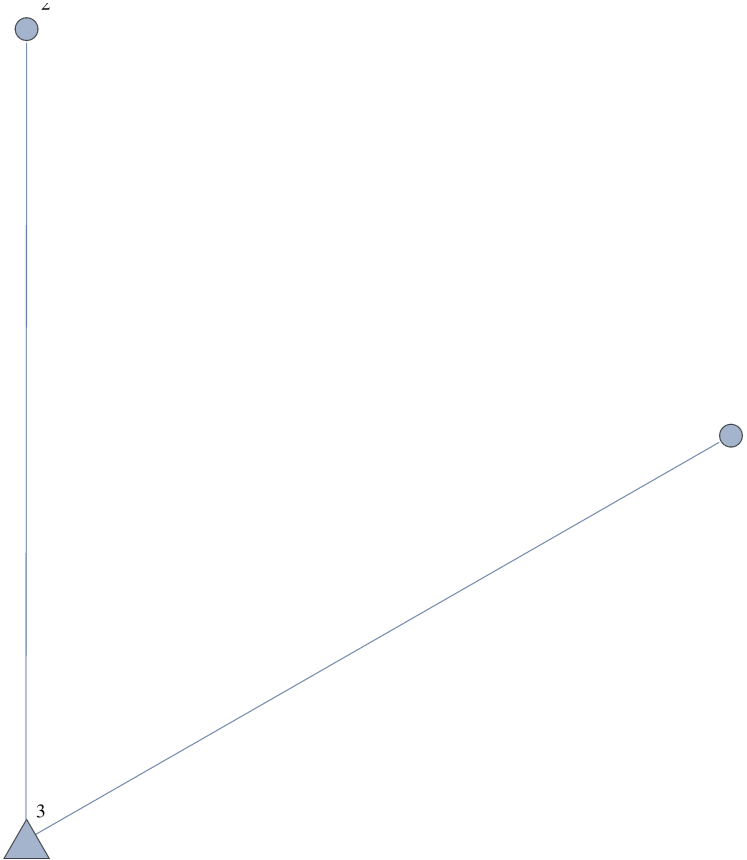


What remains is the  $K_2$ . Since the first player to play a  $K_2$  wins, Player 1 will win this game.

## ■ Player 1's Turn

(+)

```
Graph[{1, 2, 3}, {1 ↔ 3, 2 ↔ 3}, VertexLabels -> "Name",
  VertexShapeFunction -> {3 -> "Triangle"},
  VertexSize -> {3 -> 0.05}, GraphLayout -> "CircularEmbedding"]
```



## ■ Player 2's Turn

(+)

```
Graph[{1, 2, 3}, {1 ↔ 3}, VertexLabels -> "Name",
  VertexShapeFunction -> {2 -> "Triangle"},
  VertexSize -> {2 -> 0.35}, GraphLayout -> "CircularEmbedding"]
```



Player 2 lost!