

## INT2 3.1.5: 3-50, 3-51 & 3-52 Spinners

Click on the links below.

[3-50 Student eTool \(CPM\)](#)

[3-51 Student eTool \(CPM\)](#)

[3-52 Student eTool \(CPM\)](#)

### 1. Int2 3-50 Student eTool:

#### INT2 3-50 Student eTool

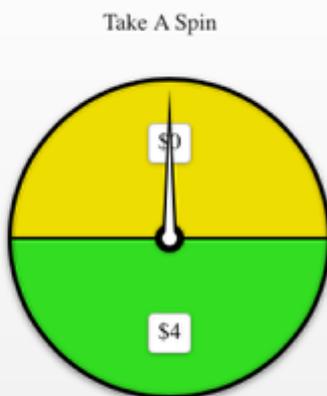
Game Rules:

After clicking the wheel at right, you win the amount spun.

a. If you play the game 10 times, how much money would you expect to win? What if you played the game 30 times? 100 times? Explain your process.

b. What if you played the game  $n$  times? Write an equation for how much money someone can expect to win after playing the game  $n$  times.

c. If you were to play only once, what would you expect to earn according to your equation in part (b)? Is it actually possible to win that amount? Explain why or why not.



### 2. Int2 3-51 Student eTool:

#### INT2 3-51 Student eTool

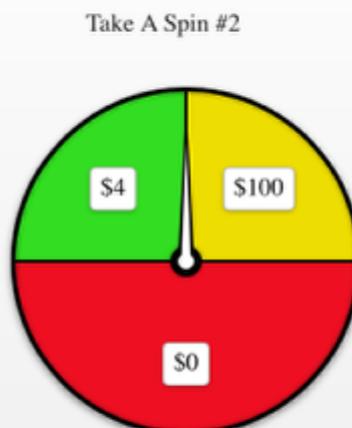
Game Rules:

Click the wheel to spin. Total your winnings from each spin.

a. If you win the amount that comes up on each spin, how much would you expect to win after 4 spins? What about after 100 spins?

b. Find this spinner's expected value. That is, what is the expected amount you will win for each spin? Be ready to justify your answer.

c. Gustavo describes his thinking this way: "Half the time, I'll earn nothing. One-fourth the time, I'll earn \$4 and the other one-fourth of the time I'll earn \$100. So, for one spin, I can expect to win  $.5(0) + .25(\$4) + .25(\$100)$ ." Calculate Gustavo's expression. Does his result match your result from part (b)?



### 3. Int2 3-52 Student eTool:

CPM Probability

#### INT2 3-52 Student eTool

Jesse has created the spinner at right. This time, if you land on a positive number, you win that amount of money. However, if you land on a negative number, you lose that amount of money!

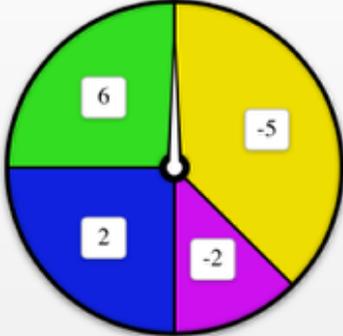
a. Before analyzing the spinner, predict whether a person would win money or lose money after many spins.

b. Now calculate the actual expected value. How does the result compare to your estimate from part (a)?

c. What would the expected value be if this spinner were fair? Discuss this with your team. What does it mean for a spinner to be fair?

d. How could you change the spinner to make it fair? Draw your new spinner and show why it is fair.

Take A Spin #3



Color	Value
Green	6
Yellow	-5
Blue	2
Purple	-2