

Practice Assessment: AS 91268 (v1)

Mathematics and Statistics 2.13

Investigate a situation involving elements of chance using a simulation.

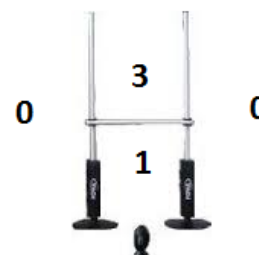
Rebelz Sportz Drop Goal Competition

Background:

Rebelz Sportz is holding a competition throughout the 2015 Rugby World Cup. Someone at random from the spectator crowd is provided the opportunity to use their drop kick skills to score points. Taking place during the half-time interval, should the person be successful they will win an awesome prize.

Rules:

- You get to attempt 6 drop-kicks
- You score points by scoring in 1 of 3 zones
 - If you put the ball over the cross-bar, between the posts, you score 3 points
 - If you put the ball under the cross-bar, between the posts, you score 1 point
 - Otherwise you score zero (0) points.
- If you score 7 or more points, you win the prize!



Chances:

Using results from past competitions, Rebelz Sportz has calculated the average probability of scoring in each of the three zones as:

Points	0	1	3
Probability of occurrence	0.50	0.35	0.15

Task 1

This assessment activity requires you to design and carryout a simulation that can be used to estimate the probability that you will win the prize.

Note the following: The process of carrying out a simulation involves:

- Describe your simulation method with enough detail for another person to replicate it.
- Record the outcomes of your simulation. Record your outcomes clearly enough for someone reading them to be able to confirm or challenge your conclusion(s).
- Calculate your results.
- State any assumptions you have made in your simulation design, and suggest possible improvements and/or other variables to consider when investigating this situation.

The design and description of your simulation, and the quality of your reasoning, will determine the overall grade.

Task 2

For all 48 games being played in the World Cup, Rebelz Sportz are offering gift-vouchers worth \$2000 to any spectator who successfully beats the points challenge at each game. Using the results of your simulation, can you estimate how many gift vouchers will need to be provided for the entire World Cup.

Ensure you clearly communicate your findings, assumptions, and improvements