

## Sample Spaces (Simulation)

Ellene plays soccer for the school team. When she shoots she usually makes 20% of her shots on goal. Suppose Ellene attempts 30 shots. What is the probability that she makes at least 6 goals? A simulation models the situation by representing each attempt using a random number from 1 to 5. Since Ellene usually makes 20% of her shots on goal, the number 1 represents making a goal and the numbers 2 to 5 represent not making a goal. The recorded results of several trials are shown below.

Trial	Random Numbers	Goals
1	2 3 1 3 4 5 4 4 4 5 1 1 3 3 4 2 5 3 2 5 2 4 1 5 4 3 4 1 5 1	
2	2 3 2 3 2 2 3 3 1 4 4 1 5 1 5 2 3 4 2 1 5 4 2 5 2 3 1 5 3 5	
3	5 3 4 2 4 4 4 4 1 3 4 3 3 2 1 5 3 3 3 4 4 1 2 3 5 4 3 4 2 4	
4	4 2 4 5 4 5 2 3 1 4 1 4 4 2 2 4 3 1 2 3 3 5 5 1 3 5 4 1 1 1	
5	2 3 5 1 2 1 5 4 5 3 4 2 1 4 3 5 3 5 4 3 3 1 3 1 5 3 4 2 1 4	
6	1 4 3 1 2 3 5 3 3 4 4 2 1 5 3 5 1 5 1 2 5 2 2 3 2 4 5 2 4 2	
7	2 3 5 1 2 3 3 1 2 1 3 4 1 4 1 5 3 2 1 4 3 1 4 5 3 2 4 4 2 3	
8	1 1 5 1 1 2 4 3 2 2 4 3 4 1 1 4 4 3 2 5 2 5 1 2 4 5 3 4 4 5	
9	2 2 3 5 2 4 3 3 2 4 4 1 1 2 4 1 3 5 4 5 3 1 3 1 4 2 1 3 3 1	
10	1 2 2 2 4 5 3 1 4 4 2 5 3 1 5 5 3 5 2 3 5 5 4 3 5 3 2 1 4 3	

Use the chart for 1–2.

1. Find the number of goals Emma makes for each trial.

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2. Calculate the experimental probability that Emma makes at least 6 goals.

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