

A Fair six-sided die is rolled twice.
What is the probability that the second number is greater than or equal to the first number?

There are 36 possible ordered pairs.

In 6 of them, the two numbers are equal.

In the remaining 30 pairs,

$$P\left(\begin{array}{l} \text{1st number} \\ \text{greater than} \\ \text{2nd number} \end{array}\right) = P\left(\begin{array}{l} \text{2nd number} \\ \text{greater than} \\ \text{1st number} \end{array}\right) = \frac{1}{2}$$

[by symmetry]

Hence there are $30 \times \frac{1}{2} = 15$ pairs where the second number is greater.

In total, there are $6 + 15 = 21$ pairs where the second number is greater than or equal to the first, so the probability of this occurring is $\frac{21}{36} = \boxed{\frac{7}{12}}$