Denote 10 numbers by $x_1, x_2, \dots, x_{10}$. Their average is

$$\frac{\sum_{i=1}^{10} x_i}{10} = 121$$

Thus

$$\sum_{i=1}^{10} x_i = 1210$$

Since we added 11th number x_{11} that equals to 11 we have

$$\sum_{i=1}^{11} x_i = \sum_{i=1}^{10} x_i + x_{11} = 1210 + 11 = 1221$$

Thus average of these 11 numbers is

$$\frac{1}{11}\sum_{i=1}^{11} x_i = \frac{1221}{11} = 111$$

ANSWER: 111