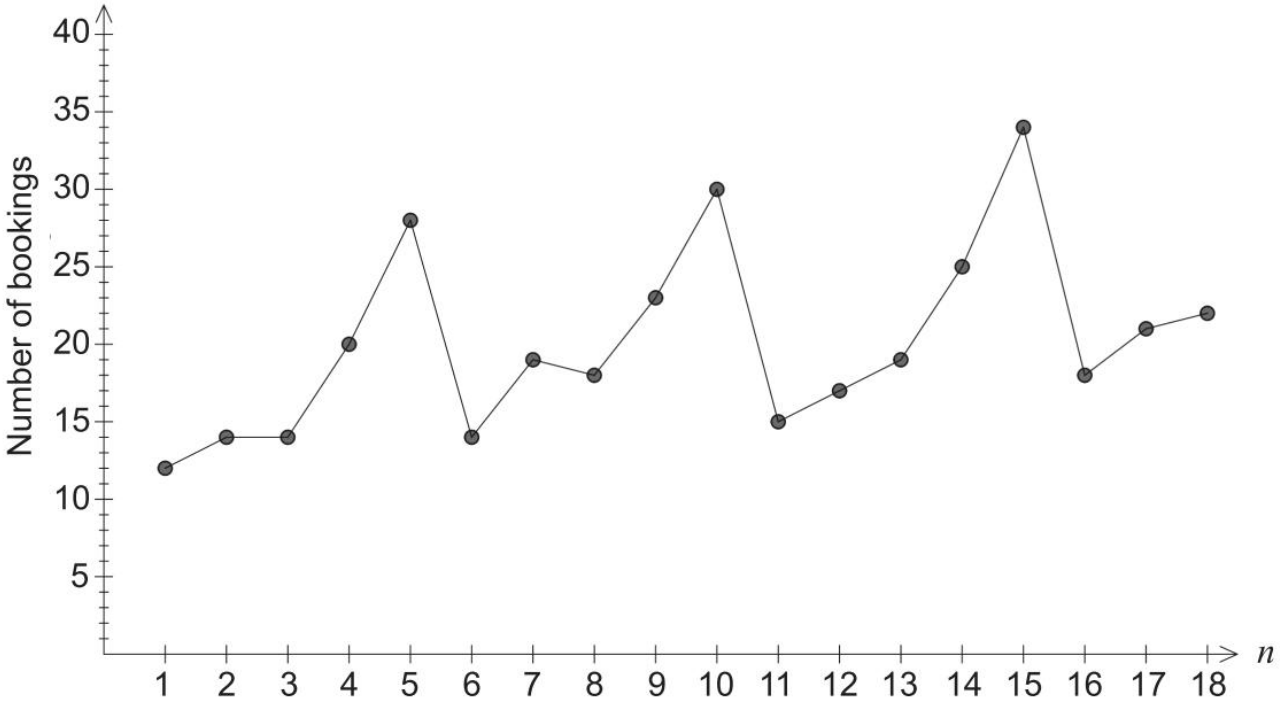
Question 8 **(11 marks)**

The graph below shows the number of bookings at a dog grooming salon over its first few weeks of business.



(a) Which simple moving average would be the **most** suitable for the data displayed in this graph? (1 mark)

A more detailed view of the same data is given in the table below.

Week	Day	n	Number of bookings	Seasonal mean	Number of bookings as a percentage of the seasonal mean	Seasonally adjusted figures
1	Tuesday	1	12	17.6	**A**	17.7
	Wednesday	2	14		79.55	16.9
	Thursday	3	14		79.55	16.6
	Friday	4	20		113.64	17.8
	Saturday	5	28		159.09	18.3
2	Tuesday	6	14	**B**	67.31	20.6
	Wednesday	7	19		91.35	23.0
	Thursday	8	18		86.54	21.4
	Friday	9	23		110.58	20.4
	Saturday	10	30		144.23	19.7
3	Tuesday	11	**C**	22	68.18	22.1
	Wednesday	12	17		77.27	20.6
	Thursday	13	19		86.36	22.6
	Friday	14	25		113.64	22.2
	Saturday	15	34		154.55	22.3
4	Tuesday	16	18	–	–	–
	Wednesday	17	21		–	–
	Thursday	18	22		–	–

(b) Calculate the value of **A**, **B** and **C** in the table. (3 marks)

(c) Calculate the seasonal index for Saturday. (1 mark)

(d) The equation of the least-squares line using the seasonally adjusted figures is $y = 0.40n + 16.94$. Draw this line on the graph. (2 marks)

(e) (i) Use the equation of the least-squares line given in part (d) to predict the number of bookings that will be made for the Saturday of Week 5. (2 marks)

(ii) Comment on this prediction. (2 marks)