- Hot water is dripping through a coffeemaker, filling a large cup with coffee. The amount of coffee in the cup at time t, from [0, 6], is given by a differentiable function C, where t is measured in minutes. Selected values of C(t), measured in ounces, are given in the table.

t(minutes)	0	1	2	3	4	5	6
C(t) ounces	0	5.3	8.8	11.2	12.8	13.8	14.5

t(minutes)	0	1	2	3	4	5	6
C(t) ounces	0	5.3	8.8	11.2	12.8	13.8	14.5

- Use a midpoint sum with three subinterval of equal length indicated by the data in the table to approximate the value of $\dfrac{1}{6}\displaystyle\int_0^6 C(t)\,dt.$

$$\frac{1}{6}\int_0^6 C(t)\,dt = \frac{2(5.3) + 2(11.2) + 2(13.8)}{6}$$

$$- \quad 10.1 \text{ ounces}$$

t(minutes)	0	1	2	3	4	5	6
C(t) ounces	0	5.3	8.8	11.2	12.8	13.8	14.5

- Using correct units, explain the meaning of $\dfrac{1}{6}\int_0^6 C(t)dt$ in the context of the problem.

The Average amount of water coming through the pot in the first 6 minutes is 10.1 ounces.