• 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(minu | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
|--------------|---|-----|-----|------|------|------|------|
| tes) C(t) | 0 | 5.3 | 8.8 | 11.2 | 12.8 | 13.8 | 14.5 |
| ounces | | | | | | | |

| t(minu tes) | 0 | 1 | 2 —— | 3 | 4 | 5 | 6 |
|----------------|---|-----|------|------|------|------|------|
| C(t) | 0 | 5.3 | 8.8 | 11.2 | 12.8 | 13.8 | 14.5 |
| ounces | | | | | | | |

• Use a midpoint sum with three subinterval of equal length indicated by the data in the table to approximate the value of 1 + 6

by the data in the table to approximate the value of
$$\frac{1}{6} \int_{0}^{6} C(t) dt.$$

$$\frac{1}{6} \int_{0}^{6} C(t) dt.$$

| t(minu tes) | 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 $\frac{1}{6}\int_0^6 C(t)dt$ in the context of the problem.

