1. (20 pts) mauLibrary/ee/ee188/irwin.06.064.pg
A 25 µF capacitor is charged by a constant current source, and its voltage is increased to 8 V in 15 s. Find the value of the constant current source, I_s, and the energy stored in the capacitor after 15 s.

\[ I_s = -13.33 \text{ µA} \]

\[ E = 800 \text{ J} \]

Correct Answers:
- 13.333333333333

2. (20 pts) mauLibrary/ee/ee188/irwin.06.023.pg
If the current \( i(t) = 10t \text{ A/s} \) flows through a 5 H inductor, find the current flowing and the energy stored at \( t = 5 \text{ s} \).

\[ \text{Current} = \frac{50}{A} \]

\[ \text{Energy} = 6250 \text{ J} \]

Correct Answers:
- 50
- 6250

---

1. \[ C = 25 \mu F = 25 \times 10^{-6} = 2.5 \times 10^{-5} \]

\[ \Delta V = 8 \text{ V}, \Delta t = 15 \text{ s} \]

\[ I_s = \left(2.5 \times 10^{-5}\right) \left(\frac{8 \text{ V}}{15 \text{ s}}\right) = 13.33 \times 10^{-6} \text{ A} \]

\[ E(15 \text{ s}) = W(15 \text{ s}) = \frac{C(V(t=15 \text{ s}))^2}{2} \]

\[ = \frac{(2.5 \times 10^{-5})(8 \text{ V})^2}{2} = 8 \times 10^{-4} \text{ J} \]

\[ = 800 \mu J \]