

P₂₀ Practice 2.9

Left to right:

$$8V \times (-7)A = -56W$$

$$8V \times 2A = 16W$$

$$-12V \times 5A = -60W$$

$$20V \times 8A = 160W$$

$$20V \times 0.25A = 20V \times [0.25 \times (-12)]A = -60W$$

P₂₉

3. (a) 1.212V

(b) $10^{11} \times 10^{-12} A = 100mA$ or 10CA or 1dA

(c) 1zs

(d) 33.9997 zs

(e) 13.1 fs

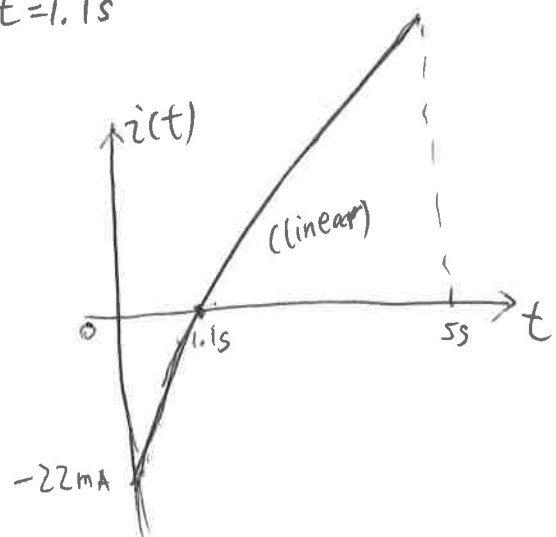
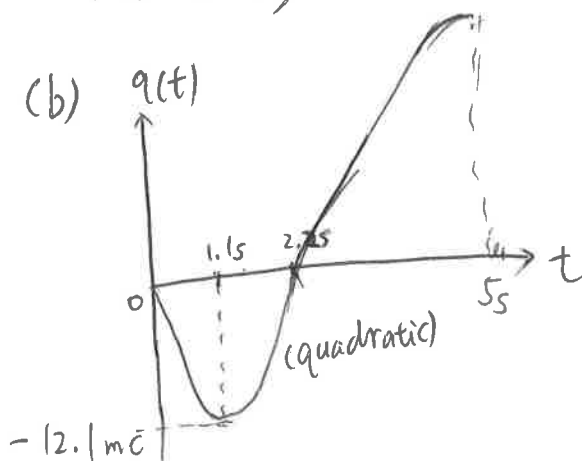
(f) ~~10ms~~ 10Ms

(g) 10us

(h) 1s

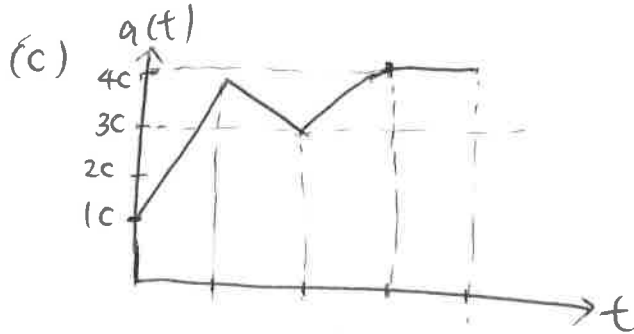
P₃₁ 19. (a) $i(t) = \frac{dq(t)}{dt} = 10 \times 2t - 22$

$$i(t) = 0 \Rightarrow 20t - 22 = 0 \Rightarrow t = 1.1s$$

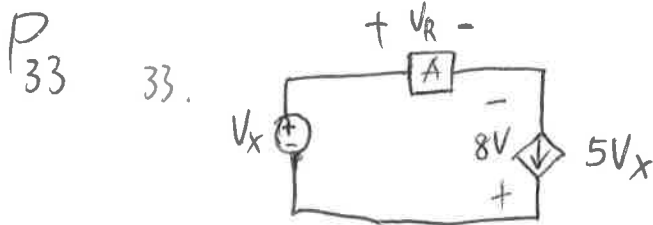


P₃₁ 22. (a) $\frac{1}{4}(3-1+1+0) = 0.75 \text{ (A)}$

(b) $(-1+1) \times \frac{1}{2} = 0 \text{ (A)}$



P₃₃ 29. $P = UI = 2\text{V} \times 2\text{A} = 4\text{W}$



(a) left to right: $V_x \cdot (-5V_x) = 2\text{V} \times (-10\text{A}) = -20\text{W}$

$$[2\text{V} - (-8\text{V})] \cdot 5V_x = 10\text{V} \times 10\text{A} = 100\text{W}$$

$$-8\text{V} \times 5V_x = -8\text{V} \times 10\text{A} = -80\text{W}$$

(b) A passive, as it absorbs positive power 100W.

P₃₄ 35. $-3v_1 = i_2$

$$\Rightarrow v_1 = -\frac{i_2}{3} = -33.3\text{mV}$$