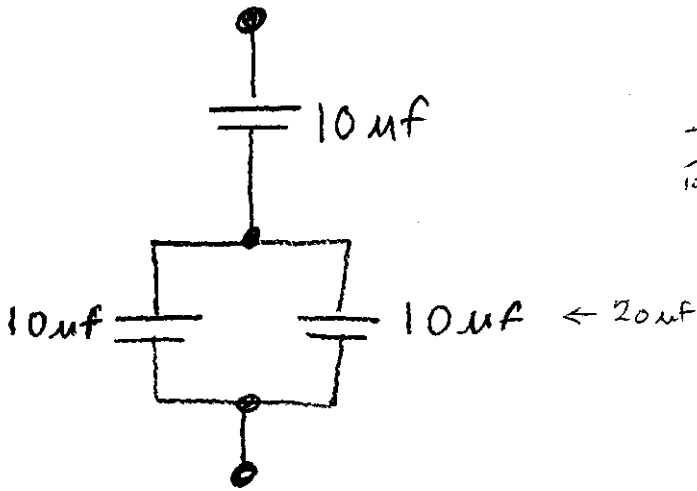


Name _____

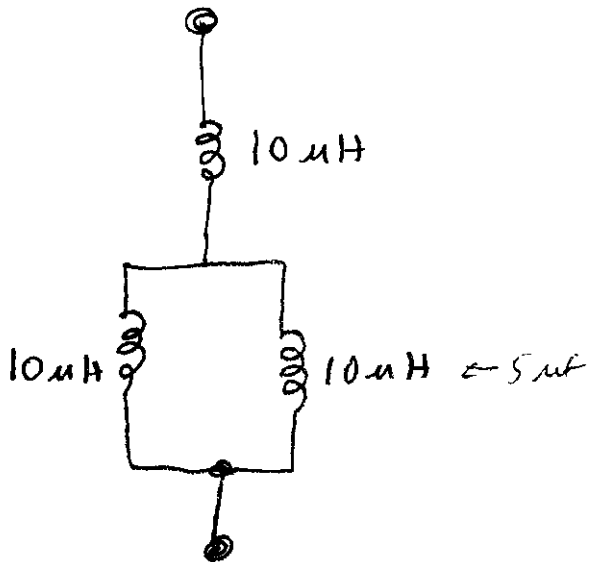
① What is the equivalent capacitance



$$\frac{1}{\frac{1}{10} + \frac{1}{20}} = 6.667 \mu\text{f}$$

↑
 $\frac{20}{3} \mu\text{f}$

② What is the equivalent inductance



15 μf

③

$$L = 5 \text{ Henrys.}$$

$$i(t) = 10 e^{-5t}$$

What is $v(t)$?

$$\frac{dv}{dt} = (10)(-5)e^{-5t}$$
$$= -50e^{-5t}$$

$$v(t) = L \frac{di}{dt} = (5)(-50e^{-5t})$$
$$= -250e^{-5t}$$

④

$$C = .01 \mu\text{F}$$

$$v(t) = 1000 + e^{-12t}$$

What is $i(t)$?

$$\frac{dv}{dt} = -12e^{-12t}$$

$$i(t) = C \frac{dv}{dt} = (.01) \times 10^{-6} (-12e^{-12t})$$

~~1.2×10^{-7}~~
 ~~$1.2 \times 10^{-7} e^{-12t}$~~

$$i(t) = - (1.2 \times 10^{-7}) e^{-12t}$$

$0.12 \times 10^{-6} e^{-12t}$